COAL AGE

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

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Blaze a Clear Trail

THE National Coal Association has undertaken an important piece of work in the study its special committee is about to make to determine what statistics on coal should be compiled and how they may best be utilized for the best interest of the industry and the public—*well within the law*. There is need for sober thought on this subject and for definite and advanced action. The industry and the country at large sorely need a thorough going coal statistical service and there is no better agency than the National to lay out a proper course to follow. The association will do well to blaze a clear trail for coal trade associations and to permit no grass to grow under its feet in the process.

Horatius Lewis Is Still at the Bridge

TWO MONTHS AGO President Lewis of the United Mine Workers declared to a *Coal Age* editor that his refusal in 1922 to permit a reduction of miners' war-time wages was the factor that saved the United States from sinking into England's deplorable economic condition. Had the miners surrendered to the demand for a leveling down of pay, the country's whole wage structure would have broken down, the nation's buying power would have shrunk, great unemployment would have resulted and chaos might have prevailed. Mr. Lewis is still putting up his fight for high wages in spite of overwhelming weight of sentiment and circumstance against him. This man Lewis simply compels admiration.

And now, having stood like Horatius at the bridge since 1922, he calls attention in his new high-wage propaganda book—"The Miners' Fight for American Standards"—to another great service he is performing. The coal industry is rescuing itself by machinery and *his high-wage policy is responsible!* High wages are driving the industry to do this thing for itself. The books says: "The policy of the United Mine Workers of America will inevitably bring about the utmost employment of machinery of which coal mining is physically capable. The policy of those who seek a disruption of the existing wage structure would only postpone mechanization of the industry and perpetuate obsolete methods." There you have it.

What we rise to inquire is this: Since it is Mr. Lewis' high wages that are driving coal men to design and adopt machines, why is so much of the present-day mechanical progress made in non-union fields? And why are union mines compelled to indulge in such a struggle with Mr. Lewis' organization to get machine scales and working conditions adopted? Somehow we are still old-fashioned enough to cling, even after reading Mr. Lewis' book, to the theory that machinery everywhere has been adopted in spite of and never because of Mr. Lewis' scale or his attitude toward the introduction of machines.

However, the miners' leader foresees that the inrush of machinery cannot be halted. The thing now is for the union to claim all the credit possible. We can only hope this presages a more wholesome spirit of helpfulness on the part of the union toward machinery.

Hold the Thought

NOT ONLY in winter but in summer also is coal destined to be man's greatest comforter and friend. The public needs to be cooled in summer almost as much as to be warmed in winter. The use for coal is not seasonal, and, when we learn that fact, the coal market will cease to decline in the summer months.

We have accepted the summer too long without any attempt at the amelioration of our lot. We have regarded its approach with a fatalism that does us no credit. We have sweltered where we might have been cool, just as our fathers went cold when they might have been warm. If the temperature of theaters can be kept 20 deg. below that of the street, why not all public auditoriums, why not the houses and offices in which people live and work?

If the public will only "hold the thought" in the next generation, we shall be comfortable indoors in both summer and winter, for the heating and ventilating engineer has devised the way. Rapid transportation, furthermore, will keep us cool when outdoors despite the summer heat, so that the burden of the June sun will rest in the future less heavily upon us.

Power and Profile Peaks

POWER, or rather energy, peaks and peaks in the grades in the mine have a close connection. Every roadway should be carefully profiled so as to ascertain where power is wasted by excessive grades. These steep ascents limit the load that can be safely and economically hauled by locomotives. With steep grades not only does one have energy peaks but wear and tear on the equipment and lowered tonnage per locomotive and sometimes the cost of maintaining a pump to keep out water into the bargain.

No railroad would tolerate such inequalities in grade, and, in many places, the mine operator should not regard them with any more equanimity. In many mines power shovels are used to assist in mucking and in lowering the cost of grading. Where there is much work to be done the shovel soon pays for itself and is ready for further work. Where the bottom is cut, a coating of cement, strengthened by a reinforcement of netting will protect the clay so that it will not deteriorate to such a degree that the adjacent pillars will squeeze it into the roadway, further weakening the roof support.

Railroading underground should be no different from railroading on the surface. A grade that would not be tolerated on an outside road is often left in the mine, though the effect is equally harmful. Nor should traditional practice be allowed to interfere with the neces-

sities of operation. Because roads have been too often allowed to rise and fall with the undulations of the coal seam is no reason why progressive management should permit the profile of a mine roadway to have excessive peaks. A bad grade is a limiting factor in haulage, raises power bills, lowers speed, damages locomotives, cars and their couplings, causes accidents and should never go uncorrected. Many electric problems are not to be met electrically but should be rectified by improvement of roadways.

More Firebosses, More Safety

AT MANY mines firebosses are given too large an area to inspect. In consequence gas and bad roof go undetected. One superintendent recently tried to dispense with a fireboss, and the safety engineer, protesting against such a specious economy, suggested that he and the superintendent try to cover the ground in the time it should be covered by the fireboss. They scrambled around the beat giving only a cursory inspection and wasting not a moment by the way. When the time set for the fireboss to make his daily rounds had been consumed they found they had not covered the full beat and were quite wearied in the chase.

In consequence the force of firebosses was not reduced, for it was clearly proved that the present staff, if industrious and efficient was not sufficient to do a good job. What would have happened if they had found gas somewhere and had been compelled to put up brattice cloth or if their safety lamps had gone out and they had been obliged to go to a safe place to relight them or what again if their relighters had failed to operate? What indeed? And this was at the mine of a company rated as one of the most exemplary anywhere.

Company officials should try out the runs that they impose on firebosses and foremen so as to see if they can perform at least the legal requirement under normal conditions. If they cannot, the law is not being obeyed, no matter what the instructions. When an accident occurs from a gas explosion it would be well for the inspector to go over each fireboss' territory in order to find out if too great a burden has been placed on any or all of them. The practice of overtasking foremen and firebosses should be stopped. It is a source of many accidents. The fireboss in such a case is less a protection against safety than an "alibi" against prosecution.

When a fireboss is discharged and another not hired, if the tonnage is not decreasing, the matter is worthy of an investigation by the state inspector. Do inspectors with sufficient frequency inquire into the number of firebosses on the job and the number of places inspected? Of course the coal thickness, the quantity of gobbed rock, the presence or absence of bad roof and the prevalence of gas are factors in determining the number of firebosses needed, but the inspector should have a definite idea how many are requisite and, if not, should acquire that knowledge by taking a fireboss around himself, testing the roof and inspecting for gas as the regular functionary would be required to do.

Here is another matter that is left too often to guesswork. Yet how easy it would be to try it out methodically. Doesn't the manager want to know whether the work is, or can be, done in accordance with law and the dictates of safety? Sometimes, it seems the manager doesn't want to make a scientific study, for the results would be embarassing. Here this editorial must close, for in these days of fierce competition and mines run at a loss, there are only too many burning ears. After all is said, would not one disaster wipe out for many decades of operation the fallacious saving of dispensing with an additional fireboss? Savings such as these do not pay.

Blending Coal

HITHERTO only coal for coking and briquetting has been blended in the United States, as far as we know, except at times when anthracite was scarce and had to be supplemented by bituminous, but whether we do well to make a general practice of selling unblended coal is a matter worthy of investigation. In other countries, particularly in South Wales, the practice of blending is quite common. In Natal also, according to W. J. Wybergh, two separate colleries operated under independent management are mixing the semi-bituminous coal of the one colliery with the anthracite of the other, there being in that country the objection to anthracite that is so usual in all countries but the United States.

Where proper equipment is not provided for the burning of anthracite it is not a satisfactory fuel. It is a question whether anthracite would have found a welcome in the United States had bituminous been equally available at the beginning of the last century. The citizens of the East had little else than anthracite to burn. Accordingly the technique was mastered, and anthracite became the sole domestic fuel of the East. Later the anthracite operators with Eckley B. Coxe as leader, diligently found out how to burn small anthracite for steam-raising purposes. Had it not been for this aggressive activity anthracite would have been ignored today for steam raising, for the large sizes, steamboat and the like, are too expensive.

In Natal, however, bituminous coal is close at hand, and, consequently, anthracite, which requires special equipment, does not get an opportunity for operation under favorable circumstances. Therefore anthracite is blended in Natal with bituminous. If this were done in America we might correct the tendency of bituminous to cake and to smoke by adding anthracite, and thus the anthracite operators might find a market for their coal in the bituminous regions. The anthracite would also hold fire longer and reduce the stoking that would otherwise be necessary.

The blended fuel might possibly be better than either. A slow-burning anthracite might be made free-burning by the addition of bituminous. However, the blend would have to be watched lest a combination be attained that would clinker freely. Two kinds of ash both with a fairly high fusing temperature may fuse at a low temperature when mixed. This difficulty which often gives rise in the southern states to "molasses clinker" is not so common in the northern fields.

Blending is worthy of consideration, not so much to eke out a scarcity of anthracite as of a way of procuring a fuel having less objectionable characteristics than bituminous, less prone to coke, less disposed to smoke, less likely to explode, less inclined to spontaneous combustion and more easily kept burning over long periods without stoking. The suggestion, it would seem, might be worthy of trial especially by companies operating in both fields. The only obstacle to the anthracite operators trying it might be the fear of having the tables turned on them by the introduction of blends into anthracite-bituminous territory.

National Coal Association Seeks Way to Serve Industry with Statistical Data

Recent Supreme Court Ruling Clears Way for Operators in Convention at Chicago—They Discuss Many Problems and Elect M. L. Gould, of Indianapolis, President for 1925

By R. Dawson Hall
Engineering Editor, *Coal Age*, New York City

GUIDED by the light of the recent trade association decision made opportunely by the Supreme Court, the National Coal Association at the Edgewater Beach Hotel, Chicago, Ill., June 17-19, prepared to recommence a collection of coal sales statistics that would be entirely within the law. The Association chose as its president, M. L. Gould, president of the Linton Coal Co., of Indianapolis, Ind., and listened to able presentations of the financing problems of the coal industry by R. K. Cassatt and of the government's retrenchment program in Washington by General Herbert M. Lord. George T. Buckingham warned the Association in collecting sales data to watch its step and seek only to disseminate ascertained facts; not to impose, or even suggest, action in accord with the facts ascertained.

The question of collecting and disseminating trade information on coal was one of the foremost subjects at the convention. H. L. Gandy, executive secretary, in his report recommended that a committee be appointed by the president to determine the extent and scope of a proper statistical service for the industry and to work out details of co-operation in such a service between the National and various trade associations and bureaus the country over. This was done as one of the principal acts of the convention. President Gould has not yet made his appointments but the committee is expected to be created at once. It may recommend that the National itself operate a large-scale data service on coal, although the convention did not direct it to do so.

Following the address of welcome by William Dever, mayor of Chicago and the appointment of committees, S. Pemberton Hutchinson, the president, made a report of the affairs of the Association which covered much the same lines as those which followed. Mr. Hutchinson declared that the Association found itself at the end of the year with a larger membership tonnage than it had at the beginning and complimented the Membership Committee and Delbert H. Pape on this achievement.

Next in order came the annual statement of the executive secretary, who said that the Association was on a strong financial basis despite the fact that it had spent $23,000 more than it received during the fiscal year ended March 31 of this year. "Consideration," said he, "must be given to the heavy loss on account of *Coal Review* from the beginning of the fiscal year, April 1, 1924, to its discontinuance, Dec. 24, 1924, and also to the fact that, during the year, nearly $20,000 was paid on past obligations of the Association. Collection of the accounts receivable, on which payments are being received from time to time, would liquidate the obligations of the Association and leave intact its reserve fund of $100,000 in bonds. The treasury is in better condition by approximately $10,000 at this time than it was at the close of the fiscal year on March 31."

M. L. Gould
Elected President of the National Coal Association

Mr. Gandy said that the assigned-car order of the Interstate Commerce Commission had been attacked by the railroads and private car owners and that the matter was pending before certain United States district courts. On advice of counsel it was decided to wait till these cases reach the Supreme Court, if they ever do, and then file a brief as a friend of the court in support of the position previously taken by the Association.

"The Maynard Coal Co.'s case against the Federal Trade Commission challenging the authority of that commission to demand special accountings and reports on the intimate details of the business of coal-producing companies was decided," said Mr. Gandy, "against the commission and is pending before the Court of Appeals of the District of Columbia." The Claire Furnace Co. case is similar, according to Mr. Gandy, and in that case the Court of Appeals had decided against the commission, so the indications are good for the success of the Maynard Coal Co.'s case. However, the Claire Furnace Co. has yet to sustain its position before the Supreme Court. Reargument is dated for Nov. 2.

Mr. Gandy referred to the National conference on the utilization of forest products, Nov. 19 and 20, 1924, and quoted the statement made at that conference that 79,000,000 cu.ft. of mine timbers, the equivalent of the annual growth on 1,500,000 acres of land were lost each year by decay. Two-thirds of this loss is said to be preventable through preservative treatment.

Discussing the recent decision of the U. S. Supreme Court in regard to trade associations, Mr. Gandy said that "in January, 1924, a committee of local association secretaries submitted to the Board of Directors of the Association a program for statistical activities based on the general association or bureau activities which would retain the details but submit only summarized statements to the National headquarters, upon which summaries covering the entire country could be based. That plan was again called to the attention of the Board of Directors at its meeting in March this year, but action was deferred." In consequence of the decisions he recommended the creation of a special advisory committee to give full consideration to outlining a plan for the collection and dissemination of trade information and to report to the Board of Directors at the earliest possible date.

Mr. Gandy drew attention to the fact that in his last annual report the Director of the Bureau of the Census recommended that Congress put the census of manufacturers on a compulsory basis to include the collection, compilation and publication of statistics of current production, consumption and stocks, shipments, orders and receipts and sales of commodities used in manufacture.

The report of Treasurer C. E. Bockus showed receipts of $199,034.95 and disbursements of $222,048.39, a deficit of $23,103.44. The assets of the Association are $270,500.27, less debts of $133,451.68, leaving a surplus of $137,048.59. Among the credits are $136,193.65 accounts receivable. The treasurer recommended that the ordinary assessment be made one mill per ton.

W. H. Cunningham, chairman of the Government Relations Committee, urged the collection of statistics regarding the coal industry, with care not to overstep the mark and violate the terms of the Sherman Act. "Looking ahead," said he, "only a short period, to next December, it does not require a far stretch of the imagination to visualize a hectic session of the 69th Congress, with the by-election in the offing, when some of the nation's law makers clamor for laws with teeth." In his opinion the suggested national conference on mine safety was dead but might come to life and the proposed child-labor amendment was in a state of coma.

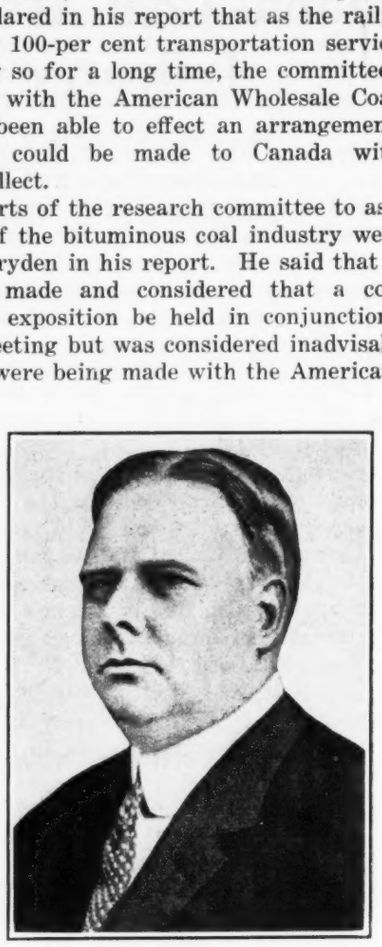
Walter Barnum, for the Membership Committee of which he is chairman, declared that as the members of the coal industry were widely scattered they needed organization more than any other industry. He said needless reporting to some busy bureau would cost every mine in the country in clerk hire alone more than the dues of the Association. As chairman of the publicity committee, M. L. Gould described the purpose of the board as not to attempt to give out to the public the news of the industry as it would like to see it recorded but to inform the press as to the whole truth of any situation. "If an industry," said he, "cannot play the publicity game with the cards on the table, it is much wiser not to sit in on the game."

Efforts would be, and are being, made to give publicity to the story of coal by magazine articles, radio, motion-picture films, addresses and contributions to local papers. "It has been out of the question," said Mr. Gould, "to consider advertising which necessarily would have to be on a national scale. To project an idea to the American public through this medium would cost considerably more than the sum represented by the total income of the Association."

C. H. Jenkins, chairman of the transportation committee declared in his report that as the railroads were furnishing 100-per cent transportation service and had been doing so for a long time, the committee had little to do. It, with the American Wholesale Coal Association, had been able to effect an arrangement whereby shipments could be made to Canada with freight charges collect.

The efforts of the research committee to assist in the progress of the bituminous coal industry were detailed by J. C. Bryden in his report. He said that a proposal had been made and considered that a coal-burning equipment exposition be held in conjunction with the present meeting but was considered inadvisable.

Efforts were being made with the American Institute of Architects, the National Boiler and Radiator Manufacturers Association, the National Association of Stove Manufacturers and the American Society of Heating and Ventilating Engineers to obtain modifications in building regulations which would require properly constructed heating installations. The committee had also offered to co-operate with the Boston Chamber of Commerce in its efforts to popularize the use of bituminous coal in New England.



C. E. Bockus

The Executive Committee of the Association has authorized the employment of a full-time secretary for the research committee and the employment at a later date of an engineer to carry on tests relating to coal combustion in co-operation with educational or other institutions having the proper equipment, contingent, however, on sufficient additional revenue being obtained by the Association.

At this point Russel B. Cooper of Johnston, Pa., was introduced. He has been given a year's fellowship at the Carnegie Institute of Technology to ascertain the tars and oils resulting from low-temperature distillation at 500-700 deg. C. instead of at 1,000 C. as is the more usual temperature. Low temperature distillation, it is well known, gives two or three times as much distillate as high temperature but what is the value of the product? It will be his endeavor to ascertain how much light, or motor, oil can be obtained, how much medium or Diesel oil and how much heavy oil and tar.

Another inquiry that should be made in this direction, he said, was as to the value of cresols in wood

preservation. Cresols made from coal have been excluded in certain standard specifications, only wood cresols being approved. German data seemed to show that impregnated with such coal-distillation cresols the life of the wood was twice as long as when wood-distillation cresols were used. It was the hope that low-temperature distillation would give a new type of coke to the coal consumer, one that would be about as easily ignited as coal and yet absolutely smokeless. He believed these possibilities appealed to every coal man.

Memorandum 2,319 in the Income Tax Bulletin of Sept. 15, 1924, has been occasioning much trouble for the special tax and cost-accounting committee of which M. L. Gould is chairman. In fact, the committee was formed to meet that particular difficulty. The memorandum read: "Car wheels, light rails, copper cable, horses, harness and chain-haul replacement, purchased and used by a coal company in its business should be capitalized and not treated as minor items or current expenses." As the chairman set forth in his report, such items did not increase production, decrease cost or add to the value of the property. The solicitor overlooked the fact that the purchase might be merely the replacement of a worn-out item of equipment of a similar nature.

As the result of the representations, Memorandum 2319-A was published by the Solicitor, Feb. 2, 1925, stating that the original memorandum had reference to a "particular situation." The Solicitor further stated that no general rule could be made by which to differentiate between "major" and "minor" items of plant and equipment and that each case must be judged on its own merits, that the length of life of the property is not an absolute test and that the fact that the equipment has a life "somewhat" in excess of one year does not necessarily make it a capital item. It must not be classed, however, as a minor item unless satisfactory proof exists that it is a minor item of the class contemplated by the Regulations.

The committee took the position that it was a well-established practice in the bituminous coal-mining industry to provide that capital charges should cease with the full development of the mine and the installation of the equipment necessary to produce the projected capacity, and that unless cost was materially or permanently decreased the cost of new equipment of a kind already in use should be charged as an expense of current operation.

Further changes in Art. 224 of the Income Tax Regulations are to be recommended to the Treasury Department so that the distinction between capital expenditures and current operating expense will be clarified.

In the afternoon of Wednesday, West Virginia, Pennsylvania and Kentucky held their state and district meetings in separate rooms. At 6:30 p.m. the Smokeless Coal Operators Association of West Virginia held a dinner in the Hotel Sovereign.

Thursday morning's session saw a large accession of operators. W. D. Ord, president of the Empire Coal & Coke Co. of Landgraff, W. Va., dealt the practice of open consignment of coal a verbal jolt or two in an address on that subject which will appear in next week's issue.

W. L. Robinson, vice-president of the Youghiogheny & Ohio Coal Co., Cleveland, Ohio, then made some remarks on the "Progress of the Safety Movement in the Bituminous Coal Industry." He said that bituminous coal mining was not so hazardous as many other occupations. The insurance rate for men working underground in the various states varies from $2.50 to $5.60 per hundred dollars of pay-roll and averages $3.50, which is about the rate that obtains in Indiana, namely $3.55.

The Indiana rate for farm hands is higher; seventy-seven occupations carry a higher rate than mining. Even the macaroni factory men have a 12 per cent higher rate than underground mine workers, and window cleaners have a rate 2½ times higher than the man who works in the mine. In his estimation the safety lamps should be uniform only for like conditions, and the administration appointed by the state should determine just what are the conditions under which the mine

W. L. Robinson

is operated. Uniform laws would put an undue burden on certain mines and leave others unprotected.

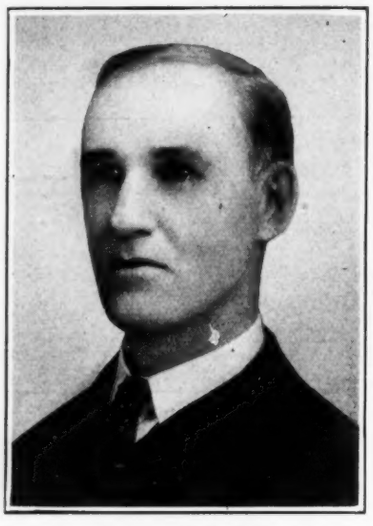
Mr. Robinson remarked that "The U. S. Bureau of Mines has been making safety surveys of mining properties at the request of operators of mines and on the basis of those surveys has made reports of conditions together with recommendations. The number of requests coming to the Bureau from bituminous coal mine operators for surveys of this kind has been increasing so rapidly that the Bureau already finds it difficult to finance the number of surveys desired."

Coupling with this the introduction of safety engineers, Mr. Robinson saw much evidence of increased interest in safety. Just as surely, said he, as the carbide lamp has supplanted the oil lamp and candle other things in the line of progress are going to occur.

This paper aroused much discussion. R. E. Howe, secretary of the Southern Coal Operators' Association, Knoxville, Tenn., commenting on the article's reference to the value of safety teaching and inculcation as against mere mechanical protection related the efforts of the operators of his local organization to promote first aid and safety through the medium of the Joseph A. Holmes Safety Association. J. F. Callbreath, executive secretary of the American Mining Congress, Washington, D. C., spoke about the new awards offered for safety in coal mining, metal mining and quarrying. C. E. Bockus, president, Clinchfield Coal Corpration, announced that his company was awarding $10 gold pieces for success in promoting safety. It had arrived at a rate of 2,000,000 tons of coal for one life.

Eugene McAuliffe, president Union Pacific Coal Co., took exception to the use of actuarial rates as bearing on relative hazards. He urged on the audience the importance of remembering that the mine worker worked less hours than the window cleaner and consequently a change would be manifest if the compensation were put, as the U. S. Bureau of Mines is trying to put its statistics, on a man-shift basis.

He believed that the inadequate training of foremen in safety was one cause for a high accident rate. These men had only a limited opportunity for association with men from other regions; consequently they missed the education that goes with such contact. The cost of coal has too often prevented adequate effort being made to prevent accidents. After all was said, the grief of the accidental death lay in the unfortunate evils it brought to dependents. Death comes sooner or later to all of us but want was not so inevitable, and accident brought want and deprivation.



Eugene McAuliffe
President Union Pacific Coal Co.

In his own company Mr. McAuliffe said he had put on an engineer as a safety man and another as a ventilation engineer. Two men from the faces of the workings were put on at every mine to watch for the safety of the mines, one chosen by the superintendent and one by the union. The Bureau of Mines' men were brought in by arrangement with the Bureau, and they found many unsafe conditions which the company's men had overlooked. The fatality record of the Union Pacific mines was not as good, he said, as that of the mines of the Clinchfield Coal Corporation.

J. G. Bradley, president, Elk River Coal & Lumber Co., Dundon, W. Va., said the Bureau of Mines was not within its rights in examining private properties, even where requested. The endeavor should be to economize at Washington and let every mine engage its own safety experts.

T. T. Read, Safety Director, U. S. Bureau of Mines, said that the Bureau rendered a great service to industry and the states by making permissible tests. Each state could not afford to make its own, nor would it be well if it could, as such a multiplication of effort was to be deplored. The Bureau of Mines had carefully regulated itself from its inception so as not to undertake anything that could be more acceptably done by individual states. Regulation, the Bureau felt, was a state function and not a national one. That was why President Coolidge favored the governors' conference, not to advance federal interference, but to call the states to a sense of their personal responsibility.

Thomas Lewis declared government interference undesirable. Mr. Bradley had said that Mr. McAuliffe's record was not as good as that of Mr. Bockus because of Mr. McAuliffe's reliance on Government aid and Mr. Bockus' stalwart determination to rely on the judgment of himself and his men. Mr. Bockus asked privilege to declare that he himself had called in two Bureau of Mines officials who helped him organize his force and did the company great service.

Confronted by a severance tax in his own state, J. E. Johnson, Hazard Coal Operators' Exchange, Lexington, Ky., has made a careful study of such taxes and gave the Association the benefit of his investigation and thought on the subject in Thursday morning's meeting.

"A severance or production tax," said Mr. Johnson, "is a tax levied upon the production of a commodity taken from the land or from the waters and is to be paid when taken or severed, calculated upon the quantity so taken or upon the sale value of the product after it has been severed. It has no relation to the sale value before being thus parted from the land or waters. A severance tax, in the face of interstate competition, really can be imposed successfully only upon a commodity in great demand, limited in quantity, and upon which the territory has practically a monopoly.

"Five states in the Union, as far as I have ascertained," said Mr. Johnson, "levy a severance tax upon bituminous coal and about twenty states levy them on various products. Alabama collects 1½ per cent of the sale price of coal produced in the state in addition to other taxes. Arkansas likewise has a tonnage tax of 1c. per ton and Montana of 5c. in addition to other imposts. Oklahoma's tax is only 0.5 per cent of the value of the coal produced, but inasmuch as the mines of that state are located largely on lands leased from the Indians and Indian lands are exempt from taxes, practically no tax is collected under the act. In Wyoming, I understand, the coal-mining assessment is based on the value of the output and not on the value of the coal in the ground."

Mr. Johnson questioned whether under the plain provisions of the constitutions of the states, a severance tax could be upheld.

"It could be only under the assumption that those engaged in producing coal enjoy a special privilege, and then that provision of the constitution is invoked which entitles the state to lay a tax upon privileges granted by the state. It was never the intention," said he, "of the makers of the constitution that a legitimate industry should be so classified."

So important was the communication of Robert K. Cassatt, president of Cassatt & Co., Philadelphia, Pa., to Thursday's meeting that it is published at length elsewhere in this issue and so no reference to it need be made here.

On Thursday a luncheon was given to the local association presidents and secretaries at which the new decision of the Supreme Court was discussed and the powers and opportunities of the associations to assist their members by the collection of statistics considered The meeting was addressed by C. B. Neel, secretary Virginia Coal Operators' Association, Norton, Va.,

George Bausewine, of the Operators' Association of the Williamson Field, Williamson, W. Va., and Dr. F. C. Honnold of the Honnold Coal Bureau, Chicago, Ill.

That evening, after a banquet with musical numbers and much good fellowship, Governor D. R. Crissinger of the Federal Reserve Board, spoke on the activities of the body over which he presided. He lauded Andrew Mellon as a second "Alexander Hamilton" and declared that four principles should govern the relations of business to the government. It should seek less taxation at home concurrently with the reduction of Federal taxation; it should urge that banking be kept out of politics; it should advocate the retention of its opportunity to run its own affairs, and it should do its best to prevent any centralization of power in Washington. In relation to the last admonition he remarked that many matters are of local importance and should be managed and controlled locally. The Federal Reserve Board Act he regarded with almost as much reverence as the Constitution.

General Herbert M. Lord

George T. Buckingham

General Herbert M. Lord described in his address his battle to keep down expenditures—a mission everybody approved generally but which almost everybody opposed specifically. However, the Budget Board, of which he is director, has succeeded in cutting the expenditures of the United States to such a degree that in 1924 they were $3,048,000,000 as against over $5,000,000,000 in 1921. In four years, despite the reduction in revenue due to lowering of taxation, the debt of the United States has been reduced $3,426,000,000.

In 1921 the federal taxes were 60 per cent of all taxes, federal and state, and the state taxes were 40 per cent. These figures are now 33 and 66 instead of 60 and 40, so greatly has state taxation grown and federal taxation declined. Those who believe they have nothing at stake are careless about taxes, but in the end they have to pay them. The dollar has become small change, and we all suffer from that fact. Our cost of living has been raised by taxation.

C. P. White, in charge of the Coal Division, U. S. Department of Commerce, offered in his address the aid of the Department to the coal industry, and Congressman A. J. Hickey, of Indiana, when called to his feet denied the proclivities of Congress to be wasteful, claiming that Congress gave us both the Federal Reserve Board and the Director of the Budget and hearty co-operation with both. Mr. Hoover had said there were two hundred bureaus of the government. Everyone seems bent on having even more. It would be better, said Congressman Hickey, to look to economies and property to solve our problems. Addresses in humorous vein were also made by Ezra Van Horn and Holly Stover.

At the meeting on Friday, C. E. Bockus, president, Clinchfield Coal Corporation, spoke on the "Value of Association Work to the Individual Operator," quoting the U. S. Department of Commerce as listing in 1913 no fewer than 1,197 trades associations, each of more than local interest, covering either the entire nation or large sections of it.

Despite the inevitable divergence between groups of members on such vital subjects as labor and freight rates, Mr. Bockus could see much that the National Coal Association could do to assist members entirely outside this realm of inherent conflict. The cost of coal had risen in the war period immensely, so had railroad freight rates "and the fuel of householder became a burden much greater than it had ever been before. This opened the industry to political attack and led to political regulation which I believe on the whole," said Mr. Bockus, "limited profits more closely on bituminous coal than on any other regulated industry during the war period. To quite an extent this was due to a lack of available information regarding costs."

He thought if the Fuel Administration had been possessed of figures of cost it could have promptly set prices with equity to the industry. As it was, it was compelled to fumble for a while.

"The industry needs always to have these figures handy. The evidence of cost in 1923," said Mr. Bockus, "will not carry the slightest weight, in my opinion, in 1926 or 1927. Another form of assistance to members might be information as to the cost of various items in operation so that each operator might better his practice and lower his cost for any item as near as might be to that of the form having the lowest cost. Research also would serve to advance the interest of the members."

George B. Harrington

Ira Clemens

Walter Barnum

George T. Buckingham of Defrees, Buckingham & Eaton, Chicago, Ill., one of the counsel of defense in the Cement Association case recently decided by the Supreme Court, then discussed the history of the interpretation of the Sherman Anti-Trust Law saying that "restraint of trade" was not synonymous with "restraint of competition." It may or may not be the same thing. The Supreme Court decision in the Standard Oil Co. case said that the facts must be considered in every case before the law can be ascertained. A combination was not in itself necessarily a trust.

"I have always advised my clients," said Mr. Buckingham, "that an association which had for its sole object the collection and dissemination of information, concerning transactions which were past and completed, ought to be regarded as legal under the Sherman Law; provided, however, that no agreement or understanding was predicated on the information. It has always seemed to me that the collection and dissemination of information concerning past events was purely statistical, that the facts which were thus broadcasted were the thermometers of yesterday's temperature, the benchmark of yesterday's flood; that it was perfectly proper for every competitor to have, and to use, all such statistical information, in order to guide his own individual course.

"It is not," he added, "the collection and dissemination of statistical information, within the ranks of a business industry, which is condemned, but only illegal use made of such information when collected. In this connection, it is timely to sound a warning. The Supreme Court has not said that any and every trade association is a legal activity. It is my belief that a large proportion of them are not within the boundaries marked."

Mr. Buckingham said trade information issued by an association must be presented without comment so that each member may use his own will and judgment in shaping his course with regard to the data presented. Certainly no pressure should be brought on any member to modify his course of action.

Mr. Long said that the argument of the Supreme Court was one of the most remarkable statements of the value of trade association activity he had ever read. He believed that the members could not choose a better means of extending the membership than by quoting the court's argument.

E. C. Mahan asked if the names of consignees of coal might be recorded. Mr. Buckingham said the decision of the court was wholly silent as to this, but he would not advise any such practice. W. D. Ord wanted to know whether prices might be discussed provided no decision was suggested as to what prices should be. Mr. Buckingham said he always urged his clients not to discuss prices, for it is always difficult to prove that only just that and no more was done. Others asked whether the secretary might not request the sending of invoices as an evidence of good faith in making returns. Mr. Buckingham replied that to answer that it would be necessary to get a more complete knowledge of the coal business than he possessed.

The election of officers resulted thus: President, M. L. Gould, Linton Coal Co., Indianapolis, Ind.; Vice-presidents, Ira Clemens, president of the Clemens Coal Co., Pittsburgh, Kans.; Michael Gallagher, general manager, M. A. Hanna Co., Cleveland, Ohio; G. B. Harrington, president, Chicago, Wilmington & Franklin Coal Co., Chicago, Ill. and Walter Barnum, president, Pacific Coast Co., New York City; treasurer, C. E. Bockus, president, Clinchfield Coal Corporation, New York City; executive secretary, H. L. Gandy.

Directors at large chosen at Chicago are: Michael Gallagher, Cleveland, Ohio; E. C. Mahan, Knoxville, Tenn.; J. B. Pauley, Chicago, Ill., and G. H. Caperton, Charleston, W. Va.

The following state directors were named: R. C. Tway, Eastern Kentucky; C. C. Dickinson, Charleston, W. Va.; V. N. Hacker, Knoxville, Tenn.; L. T. Dee, Rock Springs, Wyo.; C. H. Jenkins, Fairmont, W. Va.; F. S. Love, Pittsburgh, Pa.; F. W. Lukins, Kansas City, Mo.; S. H. Robbins, Cleveland, Ohio; W. J. Sampson, Youngstown, Ohio; Telford Lewis, Johnstown, Pa., and A. W. Callaway of Philadelphia, Pa. representing Maryland. Michigan is not represented on the board. This appointment was left to the executive committee to be made in the near future.

W. D. Ord presented several resolutions among which were one for the reduction in taxation and one for the creation of the Association's committee to plan proper collection and distribution of statistics within the law. All the nominations and resolutions received approval.

The new president took the chair and declared that he would follow the excellent lines laid down by his predecessor, S. Pemberton Hutchinson.

Robert K. Cassatt

Banker Tells Coal Industry How to Aid Itself

"Leave Coal in Ground That Cannot Be Sold at a Profit"—He Advises Mergers, Trade Associations, Cost Accounting—Outlines Banks' Attitude Toward Coal

By Robert K. Cassatt
Cassatt & Co., Philadelphia, Pa.

ALTHOUGH the outlook for your industry seems very dark, I am convinced that it will weather the present storm, as it has past storms. I am not alarmed for the future, either by the threat of competition from fuel oil or by the development of water power. I say this because I believe many causes are contributing to reduce the competition of fuel oil, and because the potential competition of water power is much exaggerated by the layman, who sees in every considerable stream a great source of power. Nothing is more erroneous. Good water power sites are few and far between. Such alarm as I may feel for the future prosperity of your industry comes from causes which I shall discuss later and which I believe to be almost wholly within the control of you men here before me.

Now, let me see if I can put before you the banker's attitude toward the coal industry. I must ask your indulgence in order to define the exact sense in which I shall use the term "banker" in this talk. My remarks will *not* refer to the banking institution which grants temporary or seasonal credit to coal companies, but to that class of bankers known as "investment bankers" whose function is to marshal idle funds in the public's hands for the use of productive industry, in the form of more or less permanent investment.

In approaching any financing the banker first asks himself, "What is the nature of this industry?" In your case he finds that it is an industry beset with unusual risks, and with unusual uncertainties, whose existence must be kept constantly in mind. We can only safely judge the industry and its future by a study of the past; and that reveals a conglomerate picture.

Investment bankers can only to a limited extent control and guide the investing public. They can and should give the closest study to the condition of any given company and form their financial plans accordingly. They can and do select the best form of security to be offered to the public. But in the last analysis it is the investing public itself which has the final word. The appeal to the public must be such as to draw forth its idle funds. Securities offered must be such as to compare favorably with other available securities, all things considered. If the public will not buy, bankers are powerless to help, because bankers themselves are not, and should not be, investors.

Taking all this into consideration and bearing in mind that bankers must always feel the public pulse, you will recognize that the greatest care must be exercised by bankers in studying coal financing. Unfortunately, coal securities have not been popular with the public in the past, due I believe to its lack of knowledge; and just now we are living at a time when the coal industry has few friends, and many who seem to wish to discredit it. In my opinion, a long and earnest campaign of education is required to give coal securities the standing to which I believe them to be entitled; and the most powerful factor in the success of such a campaign will be a firm determination on the part of all concerned not to sell to the public securities which may result in loss to the investor.

The last few years have witnessed a distinct broadening of interest in coal securities. Investment centers, and important investment houses which formerly took little interest in coal are becoming more open-minded, and the field for the sale of coal securities is now much wider than, say, fifteen years ago. But only a beginning has been made and I hope and believe that with the help of you men and through the exercise of care on the part of bankers, coal securities will slowly but surely improve in the public estimation.

Before giving you the bankers' view of sound coal finance, I must impress upon you that my remarks refer primarily to the financing of bituminous properties. Pennsylvania anthracite occupies such a unique position among natural resources, its financing is so largely an accomplished fact, and the field is so largely controlled by strong companies, that it is not likely that bankers will be required to devote much attention to anthracite financing in the future.

The investment banker acts as intermediary between the corporation requiring funds and the public. He first assists the company in creating sound securities, and then finds investors who will buy these securities, thus furnishing capital for the corporation. Such in brief are the bankers' principal functions.

But the banker has urgent duties to the public and to himself. I shall refrain from mentioning any of these except the one paramount duty to which I wish to direct your particular attention. When he is consid-

This article is from a paper read by Mr. Cassatt before the National Coal Association at Chicago, June 18, 1925.

What Appeals to the Banker

"I am unalterably opposed to creating new production until demand and potential output are more nearly in balance. But there are other reasons for giving financial backing to coal companies which are, in my opinion, perfectly legitimate even in these times. For instance, to refund maturing obligations; to furnish additional working capital; to install machinery which will reduce cost, and finally, to assist in the merging of competing companies for the good of all."

ering a specific piece of financing the investment banker should ask himself these questions: Is this constructive finance? Does it serve any useful purpose? Is it needed?

There are a thousand and one cases where the banker can justify himself for seeking the public's money for productive industry. But there is one class of financing which is emphatically wrong, and that is the type of financing designed to increase the production of an already over-developed essential industry. You see, of course, where this statement leads me. I say to you that there is no possible justification for any present project, which has for its object increasing the present output of coal, and that if either coal men or bankers do anything at this time to promote such an increase it is nothing short of an iniquity.

How can any of you men here contemplate with a clear conscience opening a new mine or increasing production with the certain knowledge that your action will plunge your industry deeper into the mire, without benefit to the public, to labor, or to anyone, except possibly increased profit to himself? How can a banker conscientiously assist in such a wrong?

I came here largely to try to drive home to you men my firm belief that hope for recovery of your very sick industry depends in large measure on a long truce in the development of new production, and it is my duty to warn you that those of you who approach bankers for funds to increase production will get a very cold reception. I realize that this doctrine may work hardship on owners of valuable virgin coal, but these are times when individuals must suffer for the good of all. And in the last analysis coal in the ground is as safe as any form of asset with which I am familiar.

Exception may also be made in the case of the old-established company, with well-established markets, whose production is declining through exhaustion of reserves. In the main, however, I am unalterably opposed to creating new production until demand and potential output are more nearly in balance.

But there are other reasons for giving financial backing to coal companies which are in my opinion perfectly legitimate even in these times. For instance, to refund maturing obligations; to furnish additional working capital; to install machinery which will reduce cost, and finally to assist in the merging of competing companies for the good of all.

There are, certainly, plenty of reasons why bankers and coal owners should co-operate, aside from increasing production. That being the case, how can money best be obtained from the public?

There is no doubt that the sound way to finance any company is through the sale of stock, but that is often difficult, and in the case of your industry, with the feeling of uneasiness that exists in the public mind, that type of finance needs scarcely to be discussed. Short-term obligations do not appeal to me for your industry. I am going, therefore, to confine myself to a discussion of long-term mortgage bonds, merely prefacing my remarks by the statement that wherever possible coal companies requiring funds should obtain them by selling preferred or common stock to present owners. Where this is impossible and when the need of funds is imperative, it is justifiable to resort to the creation of mortgage indebtedness.

Now let me enumerate one by one the points as to which a borrower on the security of coal property will have to satisfy his banker:

(1) Undeveloped coal property, however valuable, does not constitute proper security for the issuance and sale to the public of coal bonds. A demonstrated earning power sufficient to meet fixed charges with a reasonable margin of safety is an essential requirement. For this reason and because the development of new mines is not now desirable, bankers will not look with favor on bonding properties in the course of development or whose earnings are based on estimates.

(2) Coal should be of the best quality which reaches the competitive markets of the district under consideration, and the banker must be satisfied that an ample market exists.

(3) I know of few lines of business where able management counts more than in the production and sale of coal. The wise banker, therefore, investigates this feature very thoroughly before buying an issue of bonds, and he should be satisfied that the management is capable of applying the most up-to-date and scientific mining and selling methods. He believes also that it is important for the management to have a considerable financial interest in securities junior to the proposed bond issue.

(4) The security for the bonds, aud their ultimate safety, depend upon whether sound judgment is used by experts in valuing the property, and by the banker in determining how much may be safely loaned on the security. The banker's first thought and continuing concern must be on the question, "What will this property sell for at forced sale under conditions which will probably preclude the possibility of obtaining a fair price?" The reason for this is that foreclosure sales usually occur in times when few are willing to invest in the industry in question.

To answer this question, the banker employs experts to value the property, to report on the character of

Bankers Frown on More Output

"My firm belief is that hope for recovery of your very sick industry depends in large measure on a long truce in the development of new production and it is my duty to warn you that those of you who approach bankers for funds to increase production will get a very cold reception. I realize that this doctrine may work hardship on owners of valuable virgin coal, but these are times when individuals must suffer for the good of all."

the improvements, the thickness and persistence of the vein, the conditions under ground, the cost of production, the markets, and all other pertinent matters. He then determines on an amount of bonds well under what he believes a forced sale will probably realize. I believe that, except in the case of anthracite, valuations based on so much per ton in the ground are very misleading, and that the proper basis for valuation is the fair value per acre as determined by the actual selling value of similar undeveloped acreage in the district under consideration. Adding to this the value of the improvements gives a fair estimate of the value of the whole mortgageable property.

Bankers should, in my opinion, not lend more than 50 per cent of such value in any case, and in many cases conservatism will counsel lending less than 50 per cent.

This is really advantageous to the company as well as to the investor, because borrowing too much often creates a fixed charge which may become burdensome or even dangerous.

Bonds should, in general, be secured by a first mortgage on the fee simple title to coal with enough surface for operations. The issuance of mortgage bonds on leaseholds, except where other conditions are unusually favorable, does not commend itself to me because, in effect, such mortgage bonds are second in lien to the rights of the landlord.

(5) There must be a definite relation between the amount of bonds issued and the actual tonnage produced from the mortgaged premises. Without wishing to be too precise, I believe that the amount of bonds issued should not exceed three dollars per ton of annual output. I am still speaking of the bituminous fields, of course. This is but another way of saying that an interest charge exceeding 18 to 21 cents per ton is getting near the danger line.

And when it comes to the question of coal tonnage production you have before you the original skeptic. I know of no fair measure of ability to produce and sell coal, at least none that I am willing to accept, save past performance.

(6) The provisions of the mortgage must be such that either through serial payments or through annual fixed minimum sinking fund payments the entire debt will be retired and paid before more than half the coal reserves are exhausted. This is merely an equitable factor of safety to which, I think you will agree, the investor is entitled to fairly protect him.

(7) Average annual earnings for the previous three to five years must be ample to cover interest charges and annual amortization of debt with a safe margin. The question of what margin of safety should be provided is, of course, paramount. Formerly I felt that the fixed charges should have been earned twice over. I feel now that it is impossible to do more than to consider that figure as the irreducible minimum.

(8) One of the most important of all matters connected with coal finance is the question of working capital. No banker worthy of the name should consider mortgaging a coal property without providing ample, or more than ample, working capital. This is essential because the mortgaging of the property makes additional financing more difficult and to a certain extent restricts credit; because an ample working capital will often carry the company comfortably over periods of depression; and last, but by no means least, because an ample working capital permits the active management to devote its whole effort to the production and selling of coal without being harassed by annoying financial worries.

If it is right that a company should start with ample working capital at the time of mortgaging its property, it is logical that such working capital should be maintained. Therefore, the wise banker will insert conditions in the mortgage which will prevent an unwise management from dissipating its working capital, either through investment in fixed assets, through payment of dividends, or otherwise. No penalties should, however, be imposed in the mortgage for reduction in working capital through losses incurred in operation. Don't overlook the importance of ample working capital.

Bankers should be satisfied, before buying bonds, that there is no back tax liability.

I have purposely avoided a discussion of your labor problems, but as I am here to try to put before you the banker's views on your industry in its financial aspects, I should fall short of my duty if I did not point out that in considering the extension of credit to coal companies, the question of labor supply and its compensation cannot be overlooked. In districts where the compensation demanded by labor seems excessive, bankers will hesitate to advance funds and the flow of capital to such districts will gradually dry up. Conversely, where profits seem to depend on abnormally low wages, bankers will be very cautious in making loans. That stabilization and equalization of wage scales are desirable, all bankers agree.

Wage Scales Influence Loans

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How to Fix Size of Loan on Coal

"I believe that, except in the case of anthracite, valuations based on so much per ton in the ground are very misleading, and that the proper basis for valuation is the fair value per acre as determined by the actual selling value of similar undeveloped acreage. Adding to this the value of improvements gives a fair estimate of the value of the whole mortgageable property. Bankers should, in my opinion, not lend more than 50 per cent of such value in any case. I believe that the amount of bonds issued should not exceed $3 per ton of annual output."

As one important step toward lifting coal out of its deplorable state I commend to you the standardization of cost accounting. I understand that progress is being made along this line and I hope it will be rapid, because I believe there are still many operators who do not yet know what their coal really costs and who are therefore at times guilty of selling their precious store of coal not only without profit but at an actual loss. Can you imagine anything so insane?

I cannot prove it, but I believe that if but half the coal sold these last two years at an actual loss had been left in the ground, conditions in the coal trade would have been perhaps not good, but at least bearable.

I would like also to submit for your consideration the formation of trade associations in your various regions, for the collection of statistics on costs, selling prices, etc., to be tabulated and submitted to the members of the association in such form as permitted by law and as sanctioned by the recent decision of the Supreme Court. Such associations have great value.

The foregoing suggest two ways in which you men can help yourselves. Now I want to put before you another which lies within your own power and which bankers all agree will eventually tend to strengthen and stabilize the industry. I refer to voluntary combinations of coal companies by merger.

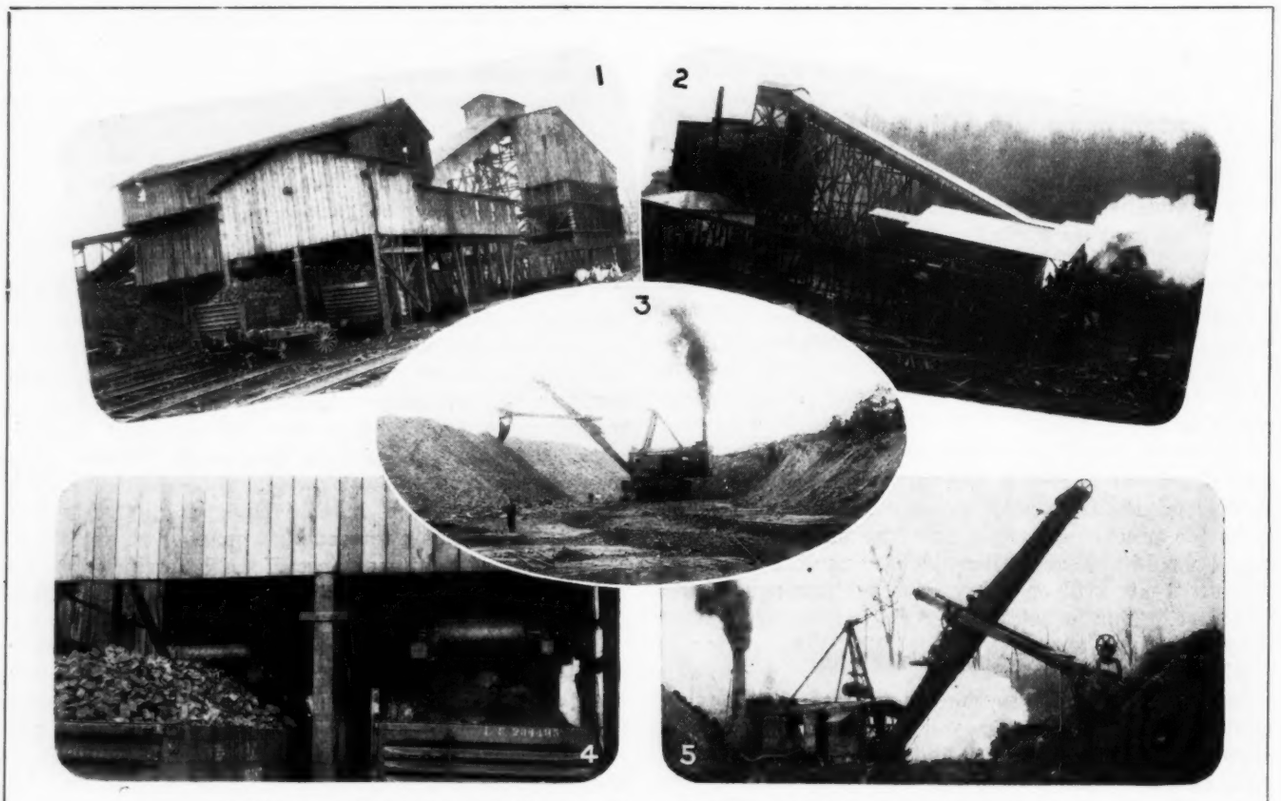
Right here, in case you should be inclined to think I have some ulterior motive in favoring mergers, I want to say that the ideal merger is the one which does not require the services of bankers at all, but is brought about by voluntary association of coal land owners.

I recognize that great difficulties are almost sure to attend such an effort. There are questions of management to be decided. Every executive cannot keep his job. There are apt to be personal differences arising from past competitive activities. And above all there is the paramount difficulty of adjusting differences of opinion as to relative values.

I offer as a solution for all these difficulties the selection of one or more outstanding business men, preferably not associated with the coal industry. You should empower these men to employ experts and accountants to value the various properties and set forth the earning record of each; and finally those wishing to merge should agree in advance to abide by the decision of the arbitrators selected by them.

Where the banker may be useful in such situations is in adjusting differences, in suggesting the best financial set-up and finally, where necessary, in arranging to buy issues of bonds to refund and extend existing funded and floating debt, and to furnish additional working capital. Where it is necessary or desirable to buy out any interest, this should be done by the sale of junior securities or their issuance to the vendor.

Very large mergers are desirable in the coal trade, but haste should be made slowly. The first step should be the formation of local mergers to be later again combined with other combinations in other districts as experience shows this can best be done. I beg of you, give this subject of mergers your serious consideration. I am sure it is deserving of your best thought. It is bound to benefit the industry.



Stripping Operations of the Hawley McIsaac Coal Co. in Kentucky

(1) Wooden tipples are the rule at strip mines because of the comparatively short life of such operations. This tipple handles the coal from the Carbondale strip mine of the Hawley McIsaac Coal Co., in Hopkins County, Ky. (2) Tipple and rescreening plant at the Cypress Creek operation also in Hopkins County. The coal is hauled from the strip mine to the tipple in side-dump cars by steam locomotives. (3) The center illustration shows the Carbondale mine of the Hawley McIsaac company, near Dawson Springs. The shovel is stripping the overburden from the No. 9 vein, which at this point averages about 5 ft. in thickness. The company started stripping operations in Kentucky in 1922, and now have four operations in the state. (4) Belt conveyors are not commonly used on loading booms. Those shown are in the tipple of the Carbondale stripping operation. (5) Loading the No. 14 vein at the Cypress Creek stripping operation by means of a steam shovel.

Long-face Mining Reclaims Much Abandoned Coal in Big Vein of Georges Creek Region

Gerdetz's Underground System with Skillful Forepoling and Cribbing Permits High Extraction with Little Explosive and at Low Timber Cost—Output Is Seven Tons per Miner

By Alphonse F. Brosky
Assistant Editor of *Coal Age*, Pittsburgh, Pa.

LONG AGO MINING companies operating in the Georges Creek region of Maryland withdrew tools and equipment from large acreages and abandoned as "unrecoverable" as much as 60 per cent of the good coal that still stood in the bed. They had done the best they knew how by room-and-pillar mining but treacherous roof and other difficult conditions robbed them of huge tonnages. Today, with fresh ideas and new vigor, some of this "unrecoverable" coal is being won by a system of longwall mining bulwarked by skillful forepoling and timbering. Long faces are retreating through pillars and falls yielding a daily output running as high as seven tons per miner with little explosive. Picks do most of the work and the timber is largely recovered.

About the time of the gold rush to California in '49, which drew the attention of the country to the West, a few of the Scotch, Welsh and Irish who had located in the Cumberland region of Maryland sensed the value of the coal—a thick and, what appeared to them, an extensive body of it—which cropped from the hills in the Georges Creek basin. While others itched for gold these men were satisfied with coal and quietly began the mining of the Big Vein, so called because of its great thickness, but which in reality is the geological equivalent of the Pittsburgh seam of Pennsylvania, Ohio and West Virginia.

The headpiece shows the Sonny Mine tipple location. Instead of lowering the coal to a railroad at the bottom of the hill, the track has been extended up the hill to a level which favors simple tipple operation. The pot holes in the hill above the tipple give the ground the appearance of a European battlefield. These holes were made by crop mining in 1917 to 1922.

That was before the day of branch-line railroads. In the beginning only enough coal was mined from the Big Vein to meet local requirements. Then came the Georges Creek R.R. which permitted the shipment of coal by rail to Cumberland, thence east by water on the old Chesapeake & Ohio Canal to Georgetown, in the District of Columbia and down the Potomac River to the coast.

In those days mining was halted with the approach of cold weather. In later years the Baltimore & Ohio and the Western Maryland railroads provided year-around transportation and coal mining became an active and steady industry in the region. It reached its full height in the Eighties and Nineties of the last century and slowly declined as virgin tracts of the Big Vein were depleted by first mining. In about 1910 the last of the solid coal was cut up into pillars.

Millions of Tons in Pillars

Impressions to the contrary, there yet remain millions of tons of unmined Big Vein coal in pillars, and tops and bottoms of rooms and entries, which could not have been won by the methods practiced in the early days. In fact, more than half of the original tonnage in the basin still remains. A few companies over a period of years have been engaged in the reclamation of this coal.

The Big Vein is distinctly divided into three benches, each of which, together with roof conditions, influenced the methods and degree of its extraction in first mining. The three benches are commonly designated

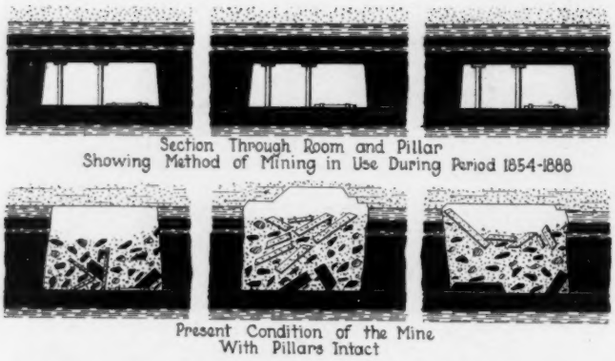

Section Through Room and Pillar
Showing Method of Mining in Use During Period 1854-1888
Present Condition of the Mine
With Pillars Intact

Fig. 1—Past and Present Condition of Old Rooms

As shown in the stratigraphic section, Fig. 10, the Big Vein is made up of three benches. Of these, prior to 1888, only the middle bench or breast coal was extracted. Pillars were abandoned with the top and bottom coal in the rooms. In addition to leaving the top coal to hold the laminated shale and coal roof above, two rows of props were employed. Note the room track which was laid with wooden rails on one side of the timbers. In the lower section the present condition of the rooms is indicated. Almost invariably the top coal and shale is fallen and sometimes also slabs of sandstone which caps the latter.

as the top, breast and bottom coals. In a thickness of, say, 10 ft. about 6 ft. composes the breast while the top and bottom each make up about 2 ft. of the bed. It is claimed that a seam thickness of 14 ft. over limited areas is not uncommon in the Big Vein and that, in pockets, the thickness may attain as much as 20 ft. A stratigraphic table of a representative thickness of the seam is shown in Fig. 10. This coal is without cleats. Both the top and bottom benches are harder than the breast coal which is quite friable. The latter is purer than the other two benches and was more highly prized by the early producers. Prior to about 1888 only the breast coal was mined.

The top coal is overlaid by treacherous laminations of coal and slate, above which is sandstone. Miners left the top coal up in the old days because it provided a more dependable roof.

However, the system of leaving bottom coal in place prior to 1888 was less justifiable. The practice is partly explained by the characteristics of this bench. The greater degree of hardness of the bottom coal as compared with that of the breast and the method of mining by picks and wedges without the assistance of explosives, no doubt encouraged the practice. Then again,

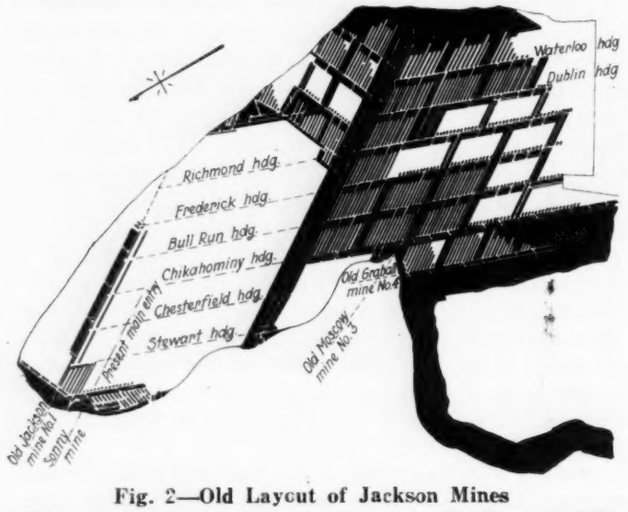


Fig. 2—Old Layout of Jackson Mines

This map was prepared by the late Isaac Bradburn in 1883. The area below and to the right of the old Graball mine No. 4, which is shown as solid, has since been first mined. The old timers took advantage of the dip of the coal in laying out this mine to facilitate haulage and drainage.

a well-defined binder between the two benches formed an excellent floor from which to shovel the breast coal.

Another reason which possibly favored this practice is the occurrence generally of two partings in the bottom coal which, if loaded into railroad cars without careful inspection and preparation, would have added to the overall ash content of the mined seam.

Today's modern tipple equipment, including facilities for separating extraneous impurities, justifies the mining of the bottom coal and the available larger lumps of the top bench along with the breast coal in the reclamation mining which is under way.

ERECT MODERN PLANT

One of the most active companies engaged in reming Big Vein coal is the Georges Creek Coal Mining Co., a subsidiary of the Eastern Fuel Co., of Pittsburgh, Pa. This firm has reopened the old Jackson mines, in the hills overlooking from the west the town of Lonaconing.

The company has erected for the purpose a modern plant including a two-track tipple equipped with shaker screens, picking tables and a loading boom. All coal is screened, after which the lump passes over one picking table and the nut and slack over another.

The Jackson property, or the Sonny mine, as it is

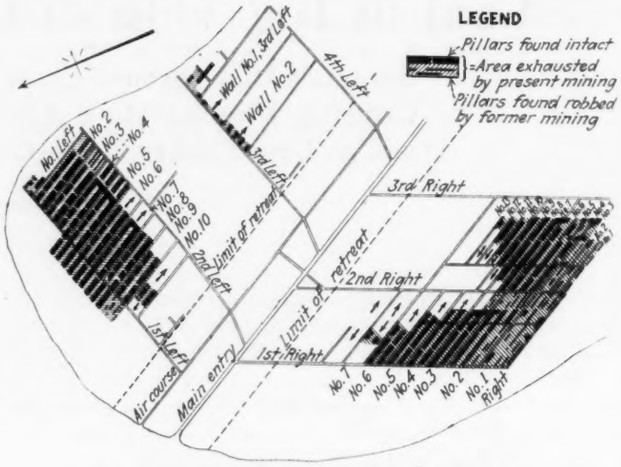


Fig. 3—Past and Present Plan of Working

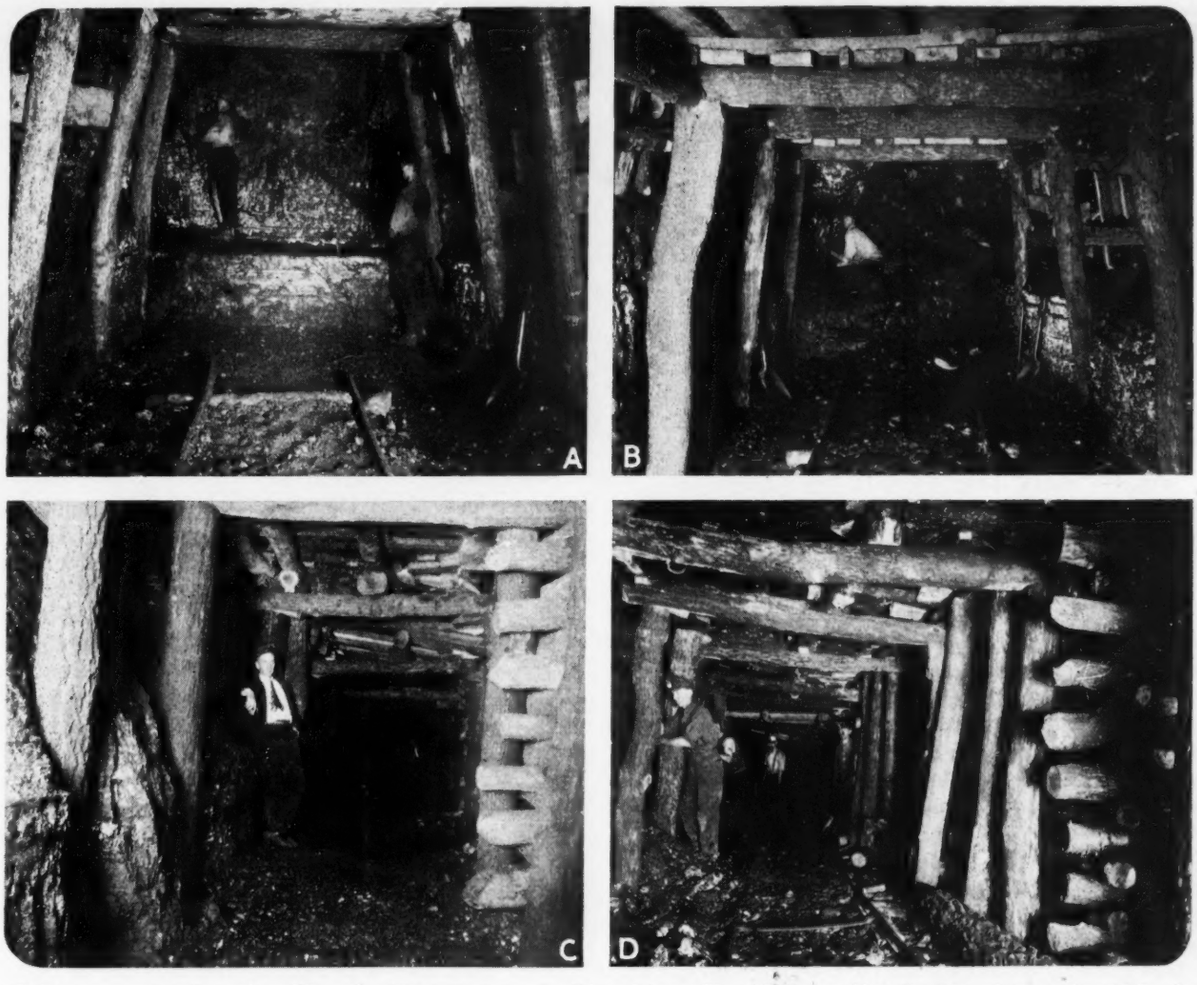
Here the new development as of March 1, 1925, is superimposed on the old workings as of April 10, 1861, in a portion of the old Jackson mines. The length of the present longwall faces and the direction of their retreat are governed by the present condition of the pillars and roof.

now called, was opened in 1854. A map of the property is exhibited in Fig. 2, showing the layout of the workings. Mining was done by a room-and-pillar system. From the main entry, which was driven into the coal on the full rise, were spaced branch entries at intervals of about 550 ft. The branches were driven partly on the water level and partly across the pitch of the seam. From the single cross entries and always on the full rise were driven rooms 16 ft. wide on 40-ft. centers. For ventilation purposes every fifth or sixth room was driven through the barrier pillar on the lower side of each cross entry. With the progress of the times, ventilation was accomplished by natural draft, by furnaces and later by steam-driven fans.

To protect cross entries, on their lower side 100-ft. barrier pillars were left in place. At varying intervals along the cross entries 100-ft. barriers were established between rooms. The main entries were also protected on either side by 100-ft. barriers.

Judging from the layout adopted for mining the Big

These Photographs Illustrate the New System of Mining In the Georges Creek Region



A—Driving an entry through solid coal. This operation is relatively simple as compared with that of driving through falls. Even so, every precaution is taken to make the place safe. Note how the legs of the timber sets rest in channels in the ribs. The miner on the left is standing on the bottom coal and is picking the breast coal. Above the timbers is the top coal which is left in place to help hold the roof.

B—Driving an entry through a fall. The face is made up of the bottom coal on which the top coal and roof have caved. The left rib is of solid coal in a pillar which flanks an old room through which this entry is being driven. The entry is "hugging" the pillar on the left. The right-hand side of the entry is flanked by a fall in the remaining width of the room through which this opening is being driven.

C—Second cut ready for track. All advanced props or legs, whether at the face of an entry or on a long face, are set in channels. The man on the left is Louis F. Gerdetz.

D—Mining a long face. These miners are making the first of two cuts which advance alternately the track and crib line behind it. The fore part of this face is retreating through a pillar. The low timbers behind the furthermost man are supporting the upper zone of the fall under which the face is tunneled in remining an old room. Attention is called to the manner in which the crown bars or stringers of the timber sets lie over the uppermost projecting crib sticks. When the road sets are removed in the recovery of timbers the stringers are held up by the cribs.

Vein coal, it is unlikely that the early operators ever entertained the intention of drawing pillars. From all indications the partial robbing of pillars was executed in a hurry and at random at a time when the mines were considered worked out and in bad condition. Robbing was confined mainly to the barrier pillars flanking the main entry and close to the pit mouth. Branch-entry barrier pillars were less affected and room pillars went practically untouched.

Hand Mining Too Slow

The rooms were too long, the pillars too narrow, timbering insufficient and mining by hand methods too slow to have enabled the old timers to recover the pillars by working from the inby or upper ends before the rooms were blocked or otherwise made dangerous by the occurrence of falls. The top coal could not have held up for long the rash above it, for at the end of the time required to drive a room the pillars must have been subjected to heavy pressures.

At any rate, in reclamation mining the inby ends of room pillars and in some cases, their entire length are found intact. In a few instances room pillars were split at their lower ends by narrow places which never penetrated more than 50 or 60 ft. before they had to be abandoned. Similarly, the barrier pillars on the lower side of cross entries in places were split by rooms and thus were only partly robbed. The main entry was heavily timbered and, consequently, the protecting barriers flanking it were robbed to a greater extent; but nowhere does there seem to have been more than 50 per cent of this coal extracted. This incomplete second mining, as indicated by evidence uncovered in late years, must have been started about 1888, the mining of the bottom coal commencing at the same time.

The Jackson mines theoretically were worked out in 1908 when they were abandoned. During the world war some crop coal was mined by underground robbing and steam-shovel stripping but neither operation penetrated more than 100 ft. from the outcrop. In 1920

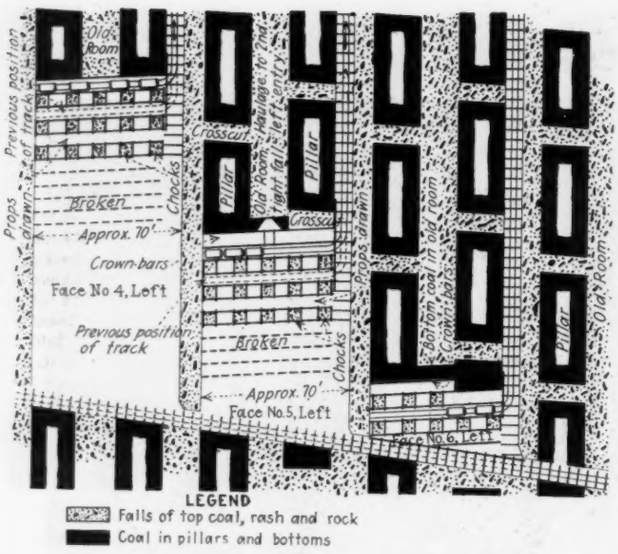


Fig. 4—"Short" Long Faces in Present System

Where mining by short faces is necessary, the track has one dead end. The face track is advanced every two cuts equivalent to 12 ft. Cribs, packed with waste material from caved rooms, are placed in rows on 12-ft. centers. In a row are one crib for each room and two for each pillar.

the Georges Creek Coal Mining Co. obtained possession of these mines. From then until January of 1923, when actual operation commenced, it was engaged in exploration. From the evidence accumulated in development and mining since then and from time-worn mine maps, it has been estimated that in the neighborhood of twelve million tons of recoverable coal, over a tract of 1,050 acres, was abandoned when the Jackson mines were shut down.

Upon reopening this property the company discovered that the top coal and shale had caved in the old rooms and entries in somewhat the manner illustrated in Fig. 1. Fortunately, due to the fact that little of the pillar coal was mined, the sandstone roof which overlies the top coal and shale appears not to have been much disturbed. In some places, though, this rock has slabbed and intermingled with the top coal and shale, all of which has been tightly packed.

Here, indeed, was a problem: How to recover the pillar coal which is crowded on all sides by heavy falls of roof, and, in addition, how to reclaim the bottom coal beneath, and the larger lumps of top coal scattered through these falls.

To begin with, the natural roof above the Big Vein is high. Add to that the interval to solid roof above the seam and one can realize the magnitude of the undertaking to reclaim any of this coal. But as the coal is in great demand, being low in ash and sulphur, the company wanted every available pound of it. By what means? The answer came with the decision to take the pillars and the coal in the falls by a system of longwall—to sweep through the length and breadth of the property, handling rock and coal.

The accomplishment of this undertaking under American competitive conditions rightfully may be regarded as one of the outstanding feats of coal mine engineering. Louis F. Gerdetz, consulting mining engineer, Pittsburgh, Pa., actually is reclaiming this coal by longwall methods.

"There is no other way," he says, "of getting practically complete recovery in this seam."

His experience has been in coal mines of continental Europe and in other kinds of underground mining in this country and elsewhere. This is his first venture in coal mining in the United States.

What other system, after all, would overcome the difficulties encountered under the conditions already described? If a large percentage of the old rooms and entries must be tunneled through to reach the pillars, the logic of taking all—both coal and rock—can be appreciated. Particularly is this so when the concentration of work and the high recovery of coal, which the system affords, are considered. The handling of so much rock in this system is not a dead loss for a part, at least, of this material is used to fill cribs which hold open the long faces. The remainder is gobbed.

The system has been successful. Its effectiveness is proved by the fact that the Sonny mine has been operating almost continuously while many other mines with similar labor conditions and certainly better mining conditions have been idle. In twenty-four working days during March of this year this mine produced 22,350 tons of coal, an average of 931 tons per day. Since the opening of this mine, in May of 1923, and until the last of April of this year it has produced 175,000 tons. The average recovery per acre remined is about 9,500 tons, which is approximately 50 per cent higher than that obtained in first mining in the early days. The average daily output per miner is seven tons; that per man on the payroll four tons. This is indeed a record considering that mining is done solely with picks.

As shown in Fig. 2, present mining activity is confined to the area east of the old No. 2 mine main entry. The new workings are shown superimposed on the old in Fig. 3. In the present development, at a distance of about 150 ft. west of the main heading in the old No. 1 mine and parallel to it, an aircourse 8 ft. wide has been driven. Parallel to it at 150 ft. between centers has been driven a double-track main entry 16 ft. wide. These two entries have been driven to a point about 1,809 ft. under the hill, through old fallen rooms.

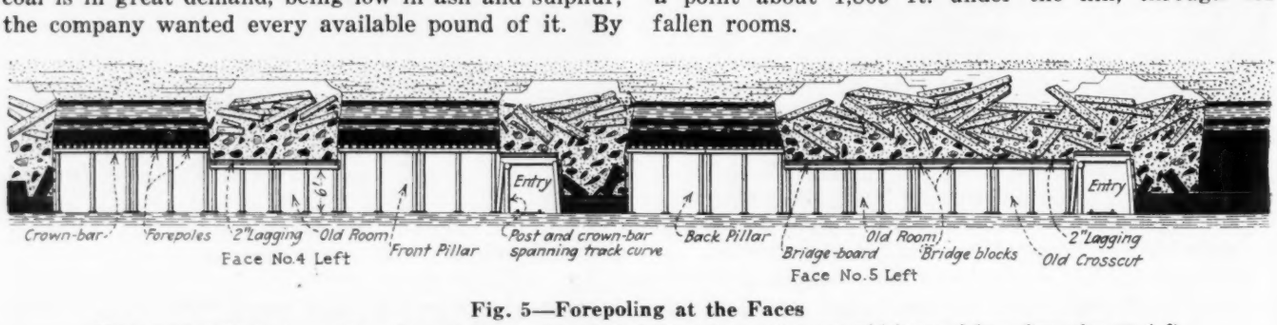


Fig. 5—Forepoling at the Faces

That part of the face on pillars is protected by 8 to 9 ft. high timber sets over which are driven forepoles on 1-ft. centers. That part of the face which advanced through old caved rooms is protected by 6 ft. high timber sets over which is driven 2-in. thick lagging skin-to-skin and in forepole fashion. Only enough height is maintained beneath the horizontal timbers to enable the recovery of the bottom coal and the easily available larger lumps of the top coal which rests on the latter.

Double Track in Main Entry

Track in an entry that is timbered along its entire length and above which are tons of loose rock per lineal foot must be laid with heavy rails. The management has insured against derailment by well-laid and drained track.

As may be seen from an inspection of Fig. 3, right and left entries are turned at intervals of 550 ft. These do not follow the course of old cross entries. They are driven 75 ft. inby from the old cross entries for the reason that room pillars were more or less weakened by former attempts to recover at least a part of the coal from their lower ends.

The old saying, "It is hard to teach an old dog new tricks," applies to teaching room-and-pillar miners longwall methods. When the long faces were first started, the men worked gingerly and were more or less afraid of conditions which, by and large probably are safer than those in many pillar sections of our room-and-pillar mines. Consequently, in teaching the men and to give them confidence, it was necessary at first to mine in a continuous face only two pillars and the intervening fallen room, or one room and one pillar. But as the men became accustomed to the work and as they gained confidence, the length of newly developed faces was increased.

Cross entries are advanced to the outcrop or boundary limit of the property. The sections between successive cross entries are mined retreating and generally on the rise—but not always—as some faces are retreating in the direction of the dip of the coal. In a few cases, sets of rooms and pillars between cross entries are being re-mined by two faces which move away from each other, one on the rise and the other on the dip, toward the two flanking cross entries. An instance of this practice is seen in No. 7 faces between first and second right cross entries in Fig. 3. This is now being done partly to hurry the mining of these narrow places and to effect greater concentration. Another reason will be mentioned later. Newly developed faces are being worked on the rise so as to take advantage of gravity to facilitate haulage and drainage.

A representative layout of short faces appears in Fig. 4. These are as long as the width of two pillars and one room. In this arrangement each face is connected for haulage and ventilation purposes by an entry, with the higher of the two cross entries flanking this area. The connecting entries are of the same width as the cross entries (8 ft. in the clear) and are driven entirely through falls in old rooms which separate the several faces. Haulage trips to and from one of these faces travel over the same path but in opposite directions.

In this plan of working, the general rule of going through all falls in the retreat has an exception. It will be noticed that a connecting entry is less than half as wide as the old room through which it is driven. The bottom coal in the remainder of the width of that room is not reclaimed. A longitudinal section of faces Nos. 4 and 5 of the area shown in plan in Fig. 4 is exhibited in Fig. 5.

A more efficient layout embodying longer faces is illustrated in Fig. 6. Here two slightly-stepped faces are retreating in practically a continuous front which is 350 ft. long. Face No. 1 lags behind face No. 2 by an interval of 24 ft. This is done chiefly for convenience in haulage.

Attention is called to several distinct departures from the layout of the short faces already discussed. Instead of driving the connecting entries through old

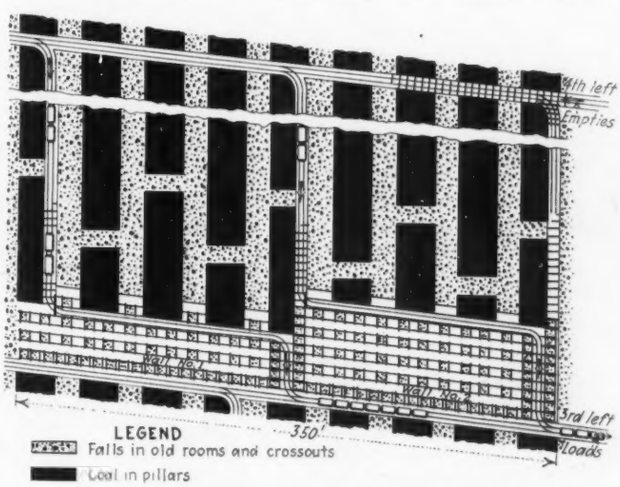
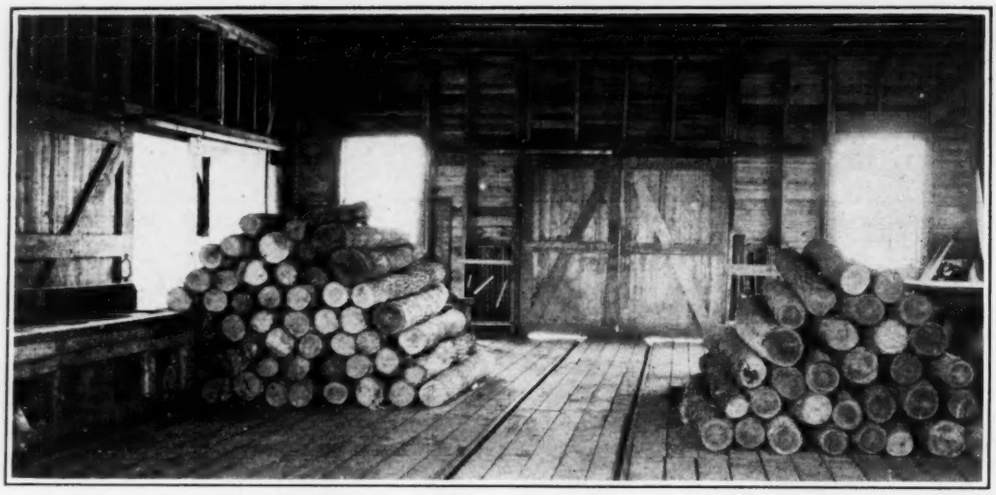


Fig. 6—Ideal Layout of Long Faces

On the long faces the connecting haulage-and-ventilation entries naturally are spaced on wider centers and, consequently, it is possible to drive these by slabbing end-on the room pillars, without weakening to a dangerous degree the support from solid coal which long faces must have. As these faces retreat, the length of the connecting entry on the load which is maintained in the goaf is increased. Cribs placed end to end are utilized for this purpose.



Timber Framing Shop

It is easier to frame timber sets in an outside shop where plenty of space is available and the proper labor-saving tools can be provided than to do it underground.

rooms, a pillar on one end of each wall is slabbed face-on to a width sufficient for an entry. On the other end of each face, as it retreats away from the lower-level cross entry, cribs, packed with waste material are erected end-to-end. Thus there is maintained in the goaf for each face a second connecting entry for convenience in haulage.

The line of haulage is continuous—from the upper cross entry through the empty connecting entry, along the face and thence through the loaded connecting entry to the lower cross entry. In this layout practically complete reclamation is obtained.

The several variations in length of faces and direction of retreat with respect to the dip of the coal, as indicated in Fig. 3, are followed to meet conditions which may change from place to place. Although the recovery of pillar coal by earlier methods is negligible, in a few isolated cases parts of a few room pillars—worked either singly or in small groups—were mined out before cave-ins prohibited further second extraction. These conditions dictate in a great measure the length and direction of some faces. While the old maps generally are fairly accurate, pillars which are indicated as being intact are sometimes partly missing.

Obviously, the success of the system results largely from the methods employed for supporting the roof. It is interesting to note that every square yard of live area within the Sonny mine is timbered or cribbed. Despite the fact that the faces and entries are heavily timbered and further protected by forepoles and lagging, the cost of timber is lower than that in some room-and-pillar mines, as every available stick of any size is recovered and used over and over again. Even broken and cracked props and forepoles are recovered and utilized for the building of cribs.

Although the cribs are 6 ft. square, it does not follow that the timbers used in their make-up are all 6 ft. long. Shorter timbers are used by lapping one over another. The extent to which timbers are recovered is indicated by the number of men—eight—engaged in this work.

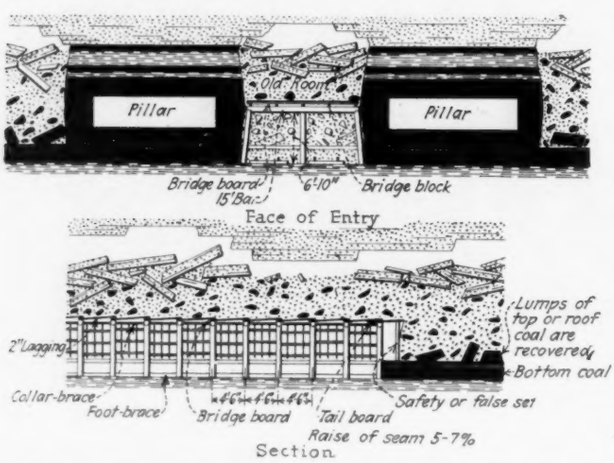


Fig. 7—Tunneling the Main Entry Through a Caved Room

These illustrations describe graphically the system of entry timbering as treated in the text. It made possible not only the driving of a double track entry but also, with a few slight modifications, the recovery of pillar and bottom coal on a longwall front.

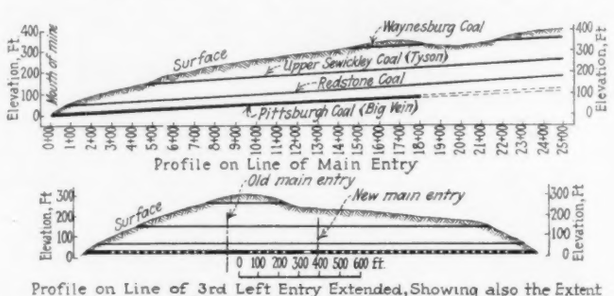

Waynesburg Coal
Surface
Upper Sewickley Coal (Tyson)
Redstone Coal
Pittsburgh Coal (Big Vein)
Mouth of mine
Elevation, Ft.
Profile on Line of Main Entry
Old main entry
New main entry
Surface
0 100 200 300 400 500 600 ft.
Profile on Line of 3rd Left Entry Extended, Showing also the Extent of First Mining on Big Vein

Fig. 8—Profiles Showing Cover Above Big Vein

Because pillars were not robbed by the old timers, the thinner seams above the Big Vein have not been disturbed, nor will they be greatly affected by the present system of reclamation by longwall in which waste-filled cribs gradually take weight and thus facilitate gentle and uniform subsidence.

Two men are employed in the framing of timbers in an outside shop. The merit of framing the timbers before they are sent into the mine has been fully established. All timber sets are standardized as to their size and method of erection. Consequently, it is more economical to frame them on the outside where plenty of space is available and power saws, templets, jigs, etc., can be provided to facilitate the work. Aside from these advantages, this provision has another merit: It assures accuracy in the framing which raises the safety factor inside the mine.

In driving and supporting the entries, and advancing the mining faces as well, a system of forepoling must be used. The cost of cleaning up the falls in rooms and entries to their full depth would be prohibitive and the practice would be dangerous. In mining and in entry work, openings are driven through the lower

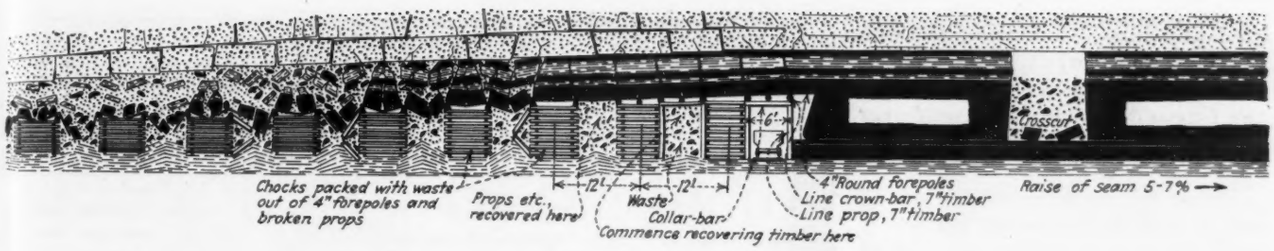


Fig. 9—Cribbing and Roof Action Behind a Face

The belief of some men that they can make the roof break when and where they please is fallacious. Props may support jointed bodies of roof rock of relatively small weight which lie directly over a mined-out area, but they do not and cannot hold the weight of the cover; neither do cribs. However, the latter do act as a cushion, gradually taking the weight of the cover by compressing to accommodate subsidence. In the main, props are not crushed —they break. Consequently, room breaks over props are more violent than over cribs.

One important detail which permits the recovery of the legs of timber sets after they have served their purpose, is brought out in this illustration. It is indicated clearly on and between the second and third cribs to the left of the face. In these cribs it will be seen that the longitudinal sticks are set under the crown bars which in turn support the forepoles and lagging. This feature makes safe the pulling of the props or legs for after this is accomplished, the crown bars come to rest on the uppermost longitudinal crib sticks and the lagging is in no way effected by absence of the props.

zone of the falls and only enough material is taken out to give the necessary height in the entries and to reach the abandoned coal in the rooms and pillars on the longwall faces.

In tunneling through the falls, precautions are taken not to disturb the repose of the fallen material above the level of the forepoles or lagging. The smaller the open space above the timbering the safer are the rooms and entries. An attempt also is made to disturb as little as possible pillars in advance of mining faces. What refuse is removed in driving entries is hauled to the outside; of that which is handled at the mining faces a part is utilized in packing cribs and the remainder is stowed between them.

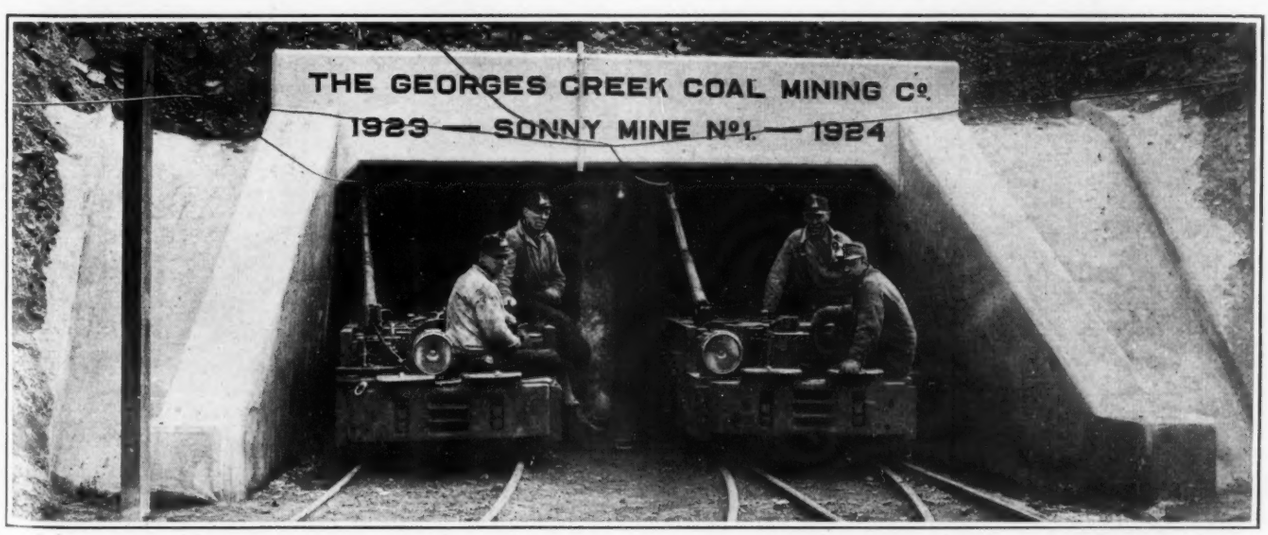
When the main entry was started, it was the opinion of several operators in the region that any passage wide enough to accommodate two tracks could not be driven with safety nor afterwards maintained. Contrary to this opinion, the entry was driven without injury to the men, and the timbers do not manifest the presence of any great weight or thrust. Cross and longitudinal sections of this entry, with details of timbering are shown in Fig. 7.

The main entry is supported by three-leg timber sets on 4½-ft. centers. These are reinforced longitudinally by collar and foot braces and are covered with 2x6-in.x 5-ft. lagging which is driven skin to skin in true forepole fashion. The sides are protected by a lattice of stringers and cross braces. Either poles or planks are used for this purpose, as conditions require.

In advancing the face of this entry (as indicated in the longitudinal section of Fig. 4) a false set resting on the bottom coal is inserted under the forepole lagging after the latter has been driven a distance equal to half its length and the waste material under it loaded out. The loading of waste and the driving of the forepole lagging continue until the latter is advanced to its full length. Then along each rib is cut a channel in the bottom coal for the accommodation of a permanent set, the foot and collar braces are set in place and the false set is removed. The timbering of secondary entries and of old rooms on the longwall faces is done in about the same way.

A study of Figs. 4 and 5 reveals the method of timbering the walls and locating the cribs. With a few modifications, the same methods of timbering are used on the walls as in the entries. By referring to Fig. 5 one can see that the timber sets in the rooms are only 6 ft. high, due to the fact that only the bottom coal and the larger lumps of caved top coal are reclaimed from the rooms, whereas, those behind the retreating pillars are 8 to 9 ft. high.

In reclaiming the pillars the bottom and breast coals are loaded. The top coal is left to help hold the shale



Main Entry Portal of Sonny Mine Where Louis F. Gerdetz Has Applied His Mining System Effectively

Although the mine is operating in an old property which was abandoned years ago, the enormous tonnage of high quality coal remaining will take years for complete recovery. Consequently that part of the main heading under extremely light cover is supported by reinforced concrete. These locomotives are 8-tonners and combine trolley, crab-reel and cable-reel types. They serve on the main hauls as well as in gathering loads from the faces.

roof above it. In driving through the rooms 2x6-in.x7-ft. lagging boards are driven skin-to-skin following out the forepole method. The roof over the end of the pillars is held by the forepoles on about 1-ft. centers.

It can be realized that the use of cutting machines is hardly feasible in such cramped quarters as exist at these working places. Shooting is restricted to the bottom coal in which light pop shots are placed after the parting at the top of this bench is removed. All mining is done by the use of hand picks.

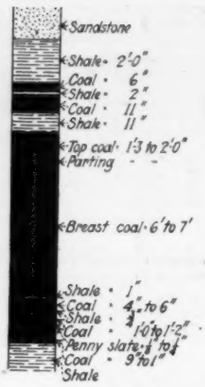


FIG. 10
Cross Section
In beds which are worked by Georges Creek Coal and Mining Co. near Lonaconing, Md.

The walls are retreated by successive 6-ft. cuts. The fallen track is advanced toward the face every 12 ft. The fallen rooms are tunneled one cut in advance of pillar cuts to probe for crosscuts in the pillars—when greater care must be exercised in timbering—and to give to the roof span over the rooms the support of the pillars while timbering is being set in the rooms. As the tunneling of rooms proceeds, the waste material thus derived is packed in the cribs, one or more of which are always in some unfinished stage of erection. Further successive steps in the face operation are indicated in Fig. 4.

Representative profiles of the surface showing the thickness of cover along the main entry and one cross entry are exhibited in Fig. 8. A section through a room pillar, showing the position of various timbers and the roof action at and behind a face, is shown in Fig. 9. It is apparent that only by the use of cribs or pack walls, or a combination of the two, will the roof subside gently enough to enable mining of the Big Vein or any other seam by longwall methods.

"Keep Cool with Coal" Idea Is Beginning to Spread

The campaign *Coal Age* started a year ago to create an expanding market for coal and to increase public comfort in this country by the "Keep Cool with Coal" idea is beginning to produce widespread editorial comment. The latest published word on the subject is the following editorial in the *Louisville Evening Post* of Louisville, Ky.:

Helping the Coal Man

The nation's hot spell last week suggests a possible boon for the coal industry. That business, we are told, suffers from overproduction. It is overmanned and overcapitalized, according to financial journals. Otherwise the mines would be more continuously operated.

Keep cool with coal would be our suggestion for a campaign by the fuel industry to create a greater demand. The coal man has just permitted summer business to go by default. It should be as easy to keep cool with coal as it is to keep warm with it.

American homes, theaters, offices, business houses, all gladly spend money for heating systems. Why can they not be educated up to cooling systems? That is the task that lies before the coal man. Considering the progress made in refrigeration it should be no great trick to develop, at a reasonable cost, cooling systems for any building of from one to a thousand rooms. The Seelbach rathskeller is an outstanding example of effective temperature reduction. A number of local playhouses employ various devices to take the discomfort out the summer air. Fuel consumed for heat in winter would be duplicated by fuel needed to operate these cooling systems of the future in summer. It would greatly stimulate the demand for domestic coal.

The coal man and ice man have always been linked, more or less, in the American mind. Why not, then, have heating and cooling plants served by the same fuel? We pass this on to the coal man for what it is worth.

Pardee Hall, Lafayette College, Easton, Pa., Gift of Ario Pardee, of Hazleton

Prof. W. B. Plank, formerly with the U. S. Bureau of Mines, is head of the mining department at Lafayette. Although only thirty-one students are studying mining engineering out of an enrollment of 297 engineering students, this proportion, which is increasing, is high compared with other colleges and universities in this country. The fact that so few engineering students are studying mining engineering is deplorable in view of the importance of the mining industry.

News Of the Industry

Way Cleared for Co-operative Plan With Bureau of Mines to Improve Statistical Service in Coal Industry

By Paul Wooton
Washington Correspondent of *Coal Age*

That the Supreme Court should have removed the uncertainties from trade association activities just at the time of a reorganization of the Bureau of Mines, incident to its transfer to the Department of Commerce, is regarded as auguring well for the work in the statistics and economics of coal.

The action of the court is expected to result in the full restoration of the statistical work of the National Coal Association and of the local associations. This will make possible a co-operative arrangement with the Bureau of Mines looking to a better statistical service than the coal industry has had at any time heretofore.

Critics of Secretary Hoover have said that he has a program which he wishes to fasten on the industry. This he has denied vigorously. He has a philosophy, however, whereby the public will be served through helping industries to help themselves.

That Mr. Hoover has no thought of trying to force a statistical program on any industry is indicated conclusively by his first act after the order transferring the Bureau of Mines was issued. He proceeded to set up a committee representative of the mining industries which is to work out the policies under which the bureau will be conducted. This committee is to indicate the services the industry desires. It even is to nominate the bureau's director. This procedure hardly would have been followed, it is contended, by one anxious to put through a program distasteful to industry.

Industry May Express Itself

The real situation is that the coal-mining industry now has an opportunity, through the representative of the National Coal Association on that committee and less directly through the representatives of the American Institute of Mining and Metallurgical Engineers and of the American Mining Congress, to make its wishes known to sympathetic ears.

It may be that the coal operators now will feel that they are in a position to carry on by themselves all the statistical work they will need. They have until Aug. 1 to make up their minds as the committee is not to submit its recommendations to Secretary Hoover until that date. In the meantime the industry will be expected to say whether or not it wants the government to gather current figures on production, distribution, costs, prices, stocks and consumption. If it does not expect the whole list to be covered it will have an opportunity to say which item would be helpful. If it prefers that figures be collected largely by the coal associations does it want the assistance of the department in securing their publication? Reports of consumers' stocks, for instance, hardly could be gathered by coal producers.

It is recognized both within and without the National Coal Association that figures emanating from a trade association, even though legal, unquestionably are discounted by the public no matter how accurately they are compiled or how complete they may be.

Those in the Department of Commerce who will have to do with coal have no preconceived ideas as to what changes should be made. They are not wedded to any present activity of the Bureau of Mines, the Coal Division of the Bureau of Foreign and Domestic Commerce or the mineral resources work which has been done by the Geological Survey. They are perfectly willing to be guided by the recommendations of the industry because the major objective of the Department of Commerce is to promote trade and industrial activities. Its officials recognize that the industries themselves know best what they need and the work the department now is doing throughout its organization is along lines approved by those most concerned.

These thoughts are based not only on what Secretary Hoover has done and said but also on the conception of C. P. White, who is in immediate charge of the work the department must do to effect the reorganization. As a result of his long association with coal mining Mr. White is recognized as having all the knowledge of the business necessary to the intelligent discharge of the responsibility vested in him. Moreover he has the entire confidence of the industry, so it would seem that the policies which will be formulated have been left in the hands of those who are truly representative of the industry and who have its point of view, rather than in the hands of ambitious bureaucrats who want to saddle regulation on coal

Court Says Coal Firm Must Support Ground Surface

Coal-mining companies must not permit the surface of earth owned by other persons to cave in after coal has been taken from beneath it, according to an important ruling by the Colorado Supreme Court on June 1. "The right to surface support, in the absence of express or implied waiver," said the Court, "is an absolute right, and the owner of the surface has the right to demand that support."

The opinion even holds that where the company considers installation of such supports so costly that the coal cannot be mined the coal must be left to support the surface of the ground.

Assigned-Car Appeal Ruling Several Weeks Off

Court decisions in the suits instituted to test the order of the Interstate Commerce Commission abolishing the practice of assigning private cars and cars for railroad fuel to mines are not expected for some weeks. Final briefs were submitted to the U. S. District Court at Philadelphia in the five suits instituted there. All briefs excepting that of the Department of Justice have been submitted to the Eastern Kentucky District Court in the suit filed there, but in that case the court left open the door for possible further oral argument and testimony owing to the brief time allotted at the hearing June 6. Whichever way the decisions go, the cases are expected ultimately to reach the U. S. Supreme Court.

In the court at Philadelphia four suits for injunction were filed by private car owners while 35 carriers joined in a fifth suit against that part of the order abolishing assigned cars for railroad fuel. Arguments in these five cases were heard jointly. The injunction sought in the Kentucky federal court was brought by the Ford Motor Co. and the Fordson Coal Co., its subsidiary.

In all the cases the complainants asserted that the Interstate Commerce Commission had exceeded its authority in the order and had invaded private rights. The answer of the commission is that a private car, or an assigned car, is of no value of itself alone but that the general system of transportation must enter before the car becomes useful, thus bringing the subject entirely within the jurisdiction of the commission.

Likely to Change Name of Department of Commerce To Mines and Industry

Apparently the Department of Commerce is looking to the use of the Bureau of Mines as a nucleus around which to group all the department's activities having a direct bearing on mining. With all mining activities centralized in the Department of Commerce, where activities relating to production would be linked with studies of distribution and the needs of the consumer, the next step proposed is to place this work under the immediate direction of an under Secretary of Mines and change the name of the department to "Mines and Industry."

Many think this would be a more practical objective than a Department of Mines carrying with it an additional member of the Cabinet.

While suggestions and proposed plans will be worked out within the department, no policies will be formulated without consultation with the industry. Secretary Hoover already has taken steps looking to the setting up of a committee which will be representative of the industry to study the problem of organization. This committee will be composed of representatives of the leading associations concerned. This committee will have familiarized itself with the situation during Mr. Hoover's absence in the West. About Aug. 1, on his return, a series of conferences with the committee will be held. The committee also will be expected to recommend a director for the Bureau of Mines.

Arguments for Change

Some objection to the transfer of the Bureau of Mines was based on the belief that its work should not be separated from that of the Geological Survey. To meet that objection the argument is advanced that the broad policies of the Geological Survey look to conservation and to the development of fundamental knowledge quite removed from the economic problems of mining. The broad policies of the Department of Commerce deal with economic research and better use of materials. It is held to be much more important for mining to be associated with the consuming industries, as is the case in the Department of Commerce.

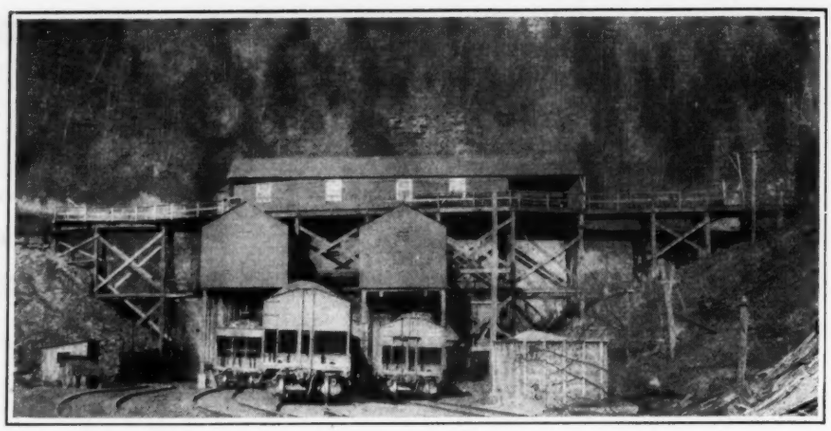
From the first the organic law of the Department of Commerce has provided that one of its major functions is to be to increase the efficiency of and prevent waste in the mineral industries. This requires studies of an economic character. In the Department of the Interior the Bureau's chief efforts have been concentrated on non-economic matters. This doubtless has been influenced by the close relationship of the department in protecting the government's own interest in public lands. In going to Commerce, where all industries are studied rather than those of a particular land owner—if one may speak of the government as a landlord—the work will be in an atmosphere which will give impulse to studies of the economic problems of mining. Had the bureau, for instance, carried forward economic studies of coal as a part of its regular work, it probably would have been unnecessary to spend $600,000 for the information gathered by the Harding Coal Commission. Moreover the results would have come out at intervals over a period of years and not in one lump, as was the case with the Coal Commission's findings. In that instance the influence on the public was slight because it could not be assimilated.

One of the changes which probably will be suggested for the consideration of the committee will be the incorporation in the Bureau of Mines of the Coal and Minerals Divisions of the Bureau of Foreign and Domestic Commerce. With these divisions could be amalgamated the mineral resources activities which are being transferred from the Geological Survey.

There is no thought of placing the mineral statistics and the mine accident statistics in the Bureau of the Census. It is believed certain that Mr. Hoover regards these statistics as tools to be used by scientific and administrative officials concerned with mining. Their most effective use can be had in the hands of those best qualified to interpret and compile them for specialized use.

The organization of the mining work of the Department of Commerce will be undertaken before consideration is given the selection of a director for the Bureau of Mines. The type of man needed can be determined better at that time, it is felt. Moreover it is recognized that the Bureau's work is in good hands under Dorsey Lyon, as ex-officio director.

A published report stating that the Bureau of Mines would be merged with the Bureau of Standards was denied emphatically at the department.



An Example of West Virginia Development

The Pond Creek-Pocahontas Co. built this tipple at its Big Four (W. Va.) mine, completing it a year ago. It is equipped with modern screens and booms to load on three tracks. There is also a bin for wagon loading on the right.

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of May

(In Net Tons)

Ports	Railroads	1925 Cargo	1925 Fuel	1925 Total	1924 Cargo	1924 Fuel	1924 Total	1923 Cargo	1923 Fuel	1923 Total
Toledo	Hocking Valley	1,867,930	56,230	1,924,160	1,422,987	40,881	1,463,868	760,562	21,622	782,184
	Big Four	310,425	330	310,755	.....	.....	.....	.....	.....	.....
	N. Y. C.-Ohio Central Lines	138,659	12,991	151,650	4,505	227	4,732	304,405	9,456	313,861
	Baltimore & Ohio	536,564	17,385	553,949	234,923	7,975	242,898	305,272	9,561	314,833
Sandusky	Pennsylvania	920,309	28,507	948,816	276,743	7,832	284,575	387,362	10,244	397,606
Huron	Wheeling & Lake Erie	200,977	9,763	210,740	179,392	8,426	187,818	272,491	9,261	281,752
Lorain	Baltimore & Ohio	41,645	25,588	67,233	252,415	24,885	277,300	474,584	30,316	504,900
Cleveland	Pennsylvania	13,261	27,501	40,762	158,254	29,146	187,400	323,427	22,443	345,870
	Erie	18,138	1,252	19,390	56,556	1,917	58,473	266,874	10,458	277,332
Fairport	Baltimore & Ohio	44,497	18,239	62,736	53,407	20,234	73,641	92,771	8,503	101,274
Ashtabula	New York Central	89,583	22,899	112,482	191,531	22,488	214,019	844,358	40,764	885,122
	Pennsylvania	85,704	10,773	96,477	131,412	14,398	145,810	277,094	11,102	288,196
Conneaut	Bessemer & Lake Erie	202,381	47,569	249,950	294,959	43,446	338,405	524,636	26,974	551,610
Erie	Pennsylvania	23,554	12,187	35,741	66,026	14,089	80,115	101,209	11,801	113,010
Totals		4,493,627	291,214	4,784,841	3,323,110	235,944	3,559,054	4,935,045	222,505	5,157,550
Storage loading		†33,017	1,048	34,065	*182,060	4,940	187,000	.....	.....	.....

*Coal loaded into vessels in December, 1923, after close of navigation and forwarded from Lake Erie ports during 1924.
†Coal loaded into vessels in December, 1924, after close of navigation and forwarded from Lake Erie ports during 1925.
Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, Manager.

Dynamiting Again Resorted to in Northern West Virginia Strike; Coal Output Continues to Mount

Dynamiting broke out again last week in northern West Virginia incident to the struggle being waged there by the United Mine Workers for existence in the Little Mountain State. House No. 127 of the Consolidation Coal Co., in Monongah, was blown up early Friday morning, June 19. John Davis, who formerly belonged to the Monongah local, but recently went to work at Scott mine of the Bethlehem Coal Co. on the company plan, occupied the house but he and all of the members of his family escaped injury. State police are at work on the case, but at last reports no arrests had been made.

Wood's Run Bridge, along the Paw Paw branch of the B. & O., near Baxter, was dynamited Wednesday morning, June 17 and a portion of the track was damaged. An effort, it is thought, was made to destroy the entire structure to prevent coal cars moving to and from Federal mine No. 1 of the New England Fuel & Transportation Co., which is the largest single tipple plant in northern West Virginia. It is reported that two suspects are under arrest. State police, it is said, have damaging evidence against one of the miners in that section.

That the United Mine Workers is making a persistent fight in the region is borne out by the fact that they recently purchased a tract of land overlooking the pit mouth of the Everettsville mine of the New England Fuel & Transportation Co., upon which barracks will be erected. The Fairmont office will remove July 1 from the Bethlehem Building to a suite of rooms in Odd Fellows' Temple, which has been leased for a year, with an option for continuation after that date.

Mine union officials say that they are making plans to erect additional barracks at Rosemont, Wendel and points in Scotts Run. This work will be under way soon. Barracks will be erected later to house the union miners who will be evicted from Parker Run mine of the Fairmont & Cleveland Coal Co., at Rivesdale, on July 29.

To Summon 3,000 Jurors

Judge J. B. Sommerville, in Circuit Court in Wellsburg, June 13, held that each of the 150 union miners evicted from houses of the West Virginia & Pittsburgh Coal Co. was entitled to separate trial by jury, and in a statement from the bench said that he stood ready to keep the court going continuously in order to try them all. Under the state law each case needs a venire of 20 men and no juror can serve on more than one suit. This means that at least 3,000 jurors will have to be summoned.

Non-union coal operators in most instances say that they are producing all of the coal that the market will absorb. Experienced miners are plentiful and men apply for work in droves whenever an additional mine resumes on the 1917 wage scale. Operators say that the 1917 wage scale is almost uniformly paid in the region. Concerns operating under the "company contract plan" are paying a scale which closely parallels the 1917 scale, although not identical for certain types of work.

Recently announcement was made that only Americans or those who have made application for their first citizenship papers may be employed in "company contract plan" mines.

Picketing by union miners became more energetic in southern Monongalia County during the latter part of last week. Reports say that from 500 to 800 miners assembled at the Everettsville mine of the New England Fuel & Transportation Co. at Everettsville, said to be the only large mine in the region that it getting 100 per cent production on a non-union basis.

During the week picketing was kept up daily at the Owings mine of the Consolidation Coal Co., which is being operated under the company plan. From 150 to 250 miners were on the picket line daily.

A new peak for non-union coal production was reached June 19, when 1,253 cars of coal were produced in the 12½ counties in northern West Virginia. In the first five days the non-union mines loaded 6,056 cars or a daily average of 1,211 cars. Union mines loaded 1,221 cars in the first five days. The indications are that the non-union production for the week ended June 20 will aggregate 351,550 tons while union tonnage will reach approximately 61,050 tons.

Some Mines Resume Operations

Miners employed at Caroline mine of the Consolidation Coal Co., it is reported, petitioned the company to return to work on the 1917 wage scale under the "company contract plan," June 20. The mine will be started this week.

The Goodwill Coal Co., employing 30 men, resumed work on the New York wage agreement under union conditions last week and it was reported that the Cleveland & Morgantown Coal Co. of the Pursglove interests is expected to resume operation at another of its mines in Scotts Run, which will employ 200 miners.

The Shriver Coal Co., in Scotts Run, which had been working non-union for months, closed down last week due to lack of orders. The miners claim that the employees, between quitting and striking, have closed the plant.

Locals at Grant Town, Middletown, Brady, Lowsville, Carolina, Howsville, Wyatt, Hutchinson and other points met last week and passed resolutions stating that they would adhere to the Baltimore agreement and remain affiliated with the United Mine Workers.

The Consolidation Coal Co. opened Perry mine, in the Clarksburg field, on June 17 and the work of cleaning up was under way preparatory to loading.

Philip Murray, International Vice-President of the United Mine Workers, accused the operators of entering into a contract which all agreed was the best possible plan and then breaking it, in addressing four thousand people in Carmichael auditorium June 21.

In his remarks he accused the national Chamber of Commerce and the National Manufacturers Association with being antagonistic to the union miners. Mr. Murray told the large assemblage that all of the union miners in the country were back of the miners in West Virginia in their struggle.

Van A. Bittner was in Charleston Tuesday and Wednesday, June 23 and 24, in conference with other international officers of the United Mine Workers for the extension of the strike, it is presumed. International President John L. Lewis; International Vice-President Philip Murray and Secretary-Treasurer Thomas J. Kennedy also attended.

"West Virginia has been cursed with gunmen fifty years," declared Van A. Bittner, and alleged that the Consolidation Coal Co. had abrogated its contract under the guise of company attachés circulating petitions, which miners signed. "The bigger they are the harder they fall," he added.

"Before July 1 there will be 6,000 union miners employed under contract in this field," Bittner said. He launched an attack at the state police who, he charged, are acting as mine guards at the Owings Mine of the Consolidation Coal Co., but said that up until this time the state constabulary had been fair.

In launching a broadside at injunctions, Bittner said that an effort had been made to destroy the United Mine Workers by putting him and other representatives in jail but he said he was willing to go to jail if it was necessary to win the fight.

A new drive in the organization campaign in northern West Virginia will start this week, when additional international representatives will come here. Among these are William Turnblazer, president of District No. 19; T. J. Smith and Sanford Snyder all of Knoxville, Tenn., and others.

Oil Burners Take to Coal

Twenty of the largest oil-burning freight locomotives operated by the Missouri, Kansas & Texas R.R. between Parsons, Kan., and St. Louis, Mo., have been converted to coal burners in order to escape the high cost of oil, officers of the company announced June 17. Other roads operating in the Southwest are said to be considering a similar move.

Coronado Rehearing Denied

A rehearing in the famous Coronado coal case was refused by the U. S. Supreme Court on June 8. In asking a rehearing the Coronado Coal Co. contended that should the United Mine Workers be relieved, as the Supreme Court has directed, from liability for damages done during the mine strikes in Arkansas in 1914, substantial redress could not be obtained from the separate local unions and the individual defendants.

Mail Order Competition Jars Coal Retailers

About a month ago coal circles were much interested in a letter in the form of a questionnaire sent out by Montgomery Ward & Co., the mail order house, to rural customers on the subject of coal. To date Montgomery Ward & Co. has done nothing about adding coal to its list of merchandise. In the meantime, Sears, Roebuck & Co. has been giving some thought to the question and definitely decided a few days ago to take on coal as an added line and to push its sale. Needless to say, this decision jarred a great many retail dealers who have virtually enjoyed a monopoly on coal in numerous small towns throughout the Middle West.

The mail-order house has started out to feature three coals: "Fire Chief," from the Franklin-Williamson district; "Heat Right," from west Kentucky, and "Black Gold," from Indiana Fifth Vein.

One interesting feature is that Sears, Roebuck & Co. had nerve enough to quote prices not only for June but for July and August as well, something that no Franklin County or west Kentucky operator has done so far. The prices quoted by Sears, Roebuck & Co. for June in the case of Franklin County coals are 42c. above the circular price to retail dealers on carload lots and 67c. above the regular wholesale price. In other words, the mail order people will make a gross margin of 67c. a ton on the coal they handle and still be able to make it fairly unpleasant for the retailers.

The prices quoted by Sears, Roebuck are as follows:

"FIRE CHIEF"

(From Franklin-Williamson County)

	June	July	August
6-in. Lump	$3.17	$3.32	$3.57
3-in. Lump	2.97	3.12	3.37
6 x 3-in. Egg	2.92	3.07	3.32
3 x 2-in. Nut	2.92	3.07	3.32

"HEAT RIGHT"

(From West Kentucky)

	June	July	August
6-in. Lump	$2.77	$2.92	$3.17
3-in. Lump	2.52	2.67	2.92
6 x 3-in. Egg	2.47	2.62	2.87
3 x 2-in. Nut	2.47	2.62	2.87

"BLACK GOLD"

(Indiana Fifth Vein)

	June	July	August
Domestic nut	$2.87	$2.97	$3.12
Furnace egg	2.87	2.97	3.12
3-in lump	2.92	3.02	3.17
Large lump	3.12	3.27	3.42

In a letter dated June 12 and addressed to the coal trade the New England Coal Dealers Association, Boston, Mass., commenting on the entry of Sears, Roebuck & Co., into the coal business, says "the intimation that there can be a profit on coal of from $1 to $3 per ton attracts much attention because we know there is no such profit in normal times.

"The public may be fooled, of course, and while this news item is of seemingly enough importance to be published by a leading financial paper, it gives a very wrong impression to its readers. We know that bituminous coal is sold at a margin of around 10c. or 15c. and in our territory anyone can buy it. It is not necessary to be shipped with sight draft; it is sold on credit.

"We retail coal distributors who sell anthracite principally will hear from this of course, but it leads us to remind you of the cost of doing business. No retail coal merchant has any particular advantage over another, either in buying or in handling coal. The costs are about the same in every community, but many do not figure accurately, and fool themselves.

"Whenever we hear of a dealer selling at a considerable spread lower than other merchants similarly situated, whether it is coal or other merchandise, one questions that dealer's knowledge of costs, or his honesty. Anthracite shrinks fully 4 per cent rail and 8 per cent via water.

"We should make a careful study of our costs these days. The cost of doing business is from 20 to 25 per cent of the selling price everywhere, in all branches of retail merchandising. Look over your own records."

The Cosgrove-Meehan Coal Corporation announced last week that it had entered into a contract with Sears, Roebuck & Co. whereby the company will provide the coal to be sold to the customers of the mail-order house throughout the country, in carload lots to clubs of coal consumers. Officials of the company said that they were committed to no definite price on the contract, but will be permitted to name prices from time to time as costs permit.

Sees Slight Help to Coal In Illinois Waterway

Cheap haulage of coal would not be greatly advanced by the Illinois waterway and the development of the Big Muddy River, according to Esther M. Utzig, instructor in the geology department of the University of Illinois. "The circumstances and conditions of coal production in Illinois do not as yet permit the beneficial use of any waterway now in prospect within the state for coal haulage," Miss Utzig said.

"The amount of coal which is produced in mines near the Illinois and Big Muddy Rivers is small in comparison to the total coal produced in Illinois. The rest of the coal in Illinois can be transported over the waterways only by the added expense of building spur canals to the mines or using rail haulage from mine to the river, which means a great deal of breakage and degradation of coal. The average production of all mines within a mile's distance of the waterway is 1,500,000 tons. This amount directly available for water transportation is insignificant in comparison to the average annual production. It does not seem probable that any of the large coal fields in southern Illinois will benefit by cheap water transportation."

Co-operatives Reorganize; Indiana Mines Busy Again

Considerable improvement has taken place in the mining situation in Indiana in the last few weeks, according to officials of the United Mine Workers, who call attention to the fact that more than 16,000 Indiana miners now are working, a gain of 2,000 over April.

A reorganization of several co-operative mines on a basis which bring them within the requirements of the Terre Haute agreement has had much to do with increasing the number of men working. At present five leased mines are in operation around Terre Haute, each of which is employing a large force of workmen and working every day.

The Carlisle Mine, at Carlisle, one of the mines which was operated by a number of miners on a co-operative basis prior to recent litigation in federal court, which resulted in a ruling upholding the power of national and district union officials to insist on the enforcement of the Terre Haute agreement, has been leased from the owners by business men of Carlisle and is working steadily. The Carlisle men appeared at district headquarters of the miners and signed an agreement to operate in line with the existing contract. The mine began operation at once and has worked each working day since.

The Oak Grove Mine, at Dugger, has been leased from the owners of the property by twelve daymen who employ about 200 men in the operation. The mine has worked since opening. The Wilford Mine, in the Shelburn field, has been leased by five daymen and bosses, who have given bond to assure the payment of the men's wages. One hundred and seventy-five men are employed at this mine, which is working every day.

The Dugger-Martin Mine at Paxton, operated prior to the co-operative controversy by about twenty-five miners, now is operated by six miners, who have agreed to pay the scale and abide by the Terre Haute agreement. The remainder of the twenty-five miners formerly engaged in the venture now are working in the mine.

A fifth mine, the Sandford Mine, at Sandford, has been leased by several daymen and is operating at full time, employing a large number of miners. The Knox and Martin mines, which were operated on a co-operative basis prior to litigation, now are operated by the owners. These mines, together with the American Mine No. 1 and the Panhandle mine, all in the Bicknell field, are working daily. The American Mine, the largest in Indiana, employs a large force of workmen and is hoisting 6,000 tons or more of coal daily.

The last payroll at the Atlas No. 1 Mine, near Petersburg, operated by the Pike County Coal Co., exceeded $77,000. This is one of the largest pays since the war. Atlas No. 1 mine is operating full time and employing about 400 men. Strip mines in Pike County are running full time and all records for loading cars were broken last week when one of the big shovels loaded a full car of coal in six minutes. With the placing of larger shovels in southern Pike County, several thousand acres of coal lands have been taken over by the stripping coal companies.

Lewis Clings to Jacksonville Compact

By Sydney A. Hale
Special Contributor to *Coal Age*

Wholesale suspensions of union bituminous mines and increased non-union activity still fail to move the United Mine Workers to reconsider its repeated refusals to revise the Jacksonville wage scale. President John L. Lewis declines to change the position he took when he informed interests engineering the abortive Cleveland conferences that the organization "would be glad to give consideration to any practical plan which does *not* contemplate a modification of existing wage contracts or a reduction in earnings."

Predictions that "Lewis' organization is headed for the rocks" are frequent these days, but if John Lewis is worried by such prophecies his public speech and appearance belie the fact. A passing, ironic reference to "the business morality" of the operators he holds responsible for defections in Pennsylvania and Ohio, a crisp statement that he wants someone to tell him just as soon as the Coal River Collieries Co. earns a dividend and the declaration that few operations in non-union strongholds are prospering sum up his indirect answer to the apostles of union doom. He strides back and forth behind his desk in the Merchants' Bank Building in Indianapolis and whimsically alludes to "the magnificent suite" and the retinue of employees maintained at international headquarters to disconcert those planning to order funeral wreaths.

To the operators as a whole, however, he flings a challenge to develop leadership which will drag the bituminous industry out of the slough of despond. And a wage reduction, he reiterates, is not the towline for the job. "If I felt that a reduction in wages would increase working time at union mines and boost the annual earnings of union miners," he declared, "I would be traitor to my trust if I didn't advocate and fight for such a reduction."

Lewis Offers No Alternative

Mr. Lewis bluntly rejects the only means of salvation many operators see, but offers no ready-made alternative. Mergers, the Jacksonville contract and the workings of the immigration law, in his opinion, are only partial answers to what he treats as a question almost as old as the industry itself. Ellis Searles, editor of the *United Mine Workers' Journal*, has said that the remedy is for operators to stop "their infernal foolishness" and refuse to sell coal except at a profit. This seams to come as near meeting with Mr. Lewis' approval as any proposal discussed. If the establishment of "sound business methods" necessitates changing the Sherman law, Mr. Lewis emphasizes the readiness of the union to join with the operators in an appeal to Congress.

Is the union satisfied with the present situation? Mr. Lewis paused as if reflecting upon the choice of words, and then answered:

"About eleven years ago Germany declared war against France. To reach its objective it started a march through Belgium, notwithstanding that Germany was signatory to a treaty guaranteeing the inviolability of Belgian soil. Germany justified the reduction of its contract to a scrap of paper on the ground of expediency. The world stood first aghast and then most of the civilized powers joined together to punish this shocking exhibition of national turpitude.

"In February, 1924, the coal operators entered into a three-year compact with the union. And now many of them are trying to violate that agreement. Why? On the ground of expediency. Our backs are to the wall in a terrific struggle to uphold the sacredness of contracts, but press and public, instead of exhibiting high moral indignation at the attacks made upon the agreement, support those who would undermine it.

"As far as the union is concerned, the Jacksonville compact stands. The United Mine Workers has never violated a contract and will not be a party to the abrogation of this one!"

"What about 1920?"

Blames Operators for Strikes

Mr. Lewis promptly unloaded responsibility for the district strikes against day rates fixed by the Bituminous Coal Commission on the operators. They, he said, had recognized that those rates were out of line, but, because of the Indianapolis indictments then hanging over them, had refused to vary the terms of the commission award when the interstate agreement was signed at New York. Returning home, however, some Illinois operators tried to remedy the injustice by paying bonuses which boosted the day rate to $8. Other producers, fearful where such a movement would end and desiring uniformity, incited and encouraged the walkout which spread to other states.

Still refusing to change the interstate contract, Illinois men, said Mr. Lewis, secretly agreed with district union officials of their state to sign a supplemental district agreement. The Indiana delegation discovered what was in the wind, reached home before the Illinois men "and beat them by a few hours on the separate district agreement."

A reduction in the present rates, Mr. Lewis insisted, would not help the situation because, first, any cut would have to be passed on by the operators to their customers, and, second, "any reduction in the union fields would be met by a cut in non-union wages, and we would be back where we started."

"Then you do not hold with those who maintain there are limits beyond which non-union operators dare not go in reducing wages?"

"I do not," was the emphatic response. "It has been said that if wages in non-union areas are cut too low, the workers there will want to be organized. Well, that is something that it is our business to know."

John L. Lewis

"Do you believe the Jacksonville agreement, if honestly observed, will work out the salvation of the industry?"

"We have never deluded ourselves with the idea that the Jacksonville agreement would cure all the ills of the coal industry. It will help, but it is no panacea."

Pumps Started and Order Restored in Nova Scotia

With the arrival of troops at the strike area of Cape Breton order has been restored and on June 16 maintenance work was resumed at several of the collieries of the British Empire Steel Corporation, which had not been pumped or ventilated for nearly two weeks. Arrangements were made to operate one of the big power houses at Glace Bay to work the pumps of the collieries in that area. James Murdock, federal Minister of Labor, arrived at Sydney on the 16th and arranged interviews with the representatives of the company and the miners.

W. O'Hearn, Attorney General for Nova Scotia, has ordered proceedings against those responsible for the death of William Davis, the miner who was killed in the fight on June 11 between special police of the British Empire Steel Corporation and striking miners.

Prosecutions of strikers charged with looting stores in the Cape Breton area and the service of warrants on others continue.

Merge Kansas Strip Mines

All the strip mines in Kansas, controlled by nineteen companies, are to be merged with a capital of $10,700,000. Final action was expected at a meeting this week at Pittsburgh, Kan., according to an announcement last week by Alexander S. Banks of Leslie, Banks & Co. of New York, certified accountants, who has been preparing the figures on the merger.

According to the plans as made public by Mr. Banks, the merged company will issue $3,000,000 in preferred stock and $7,000,000 in common stock. Ira Clemens, of Pittsburg, Kan., has been one of the principal figures in bringing about the merger.

Burns Bros. Has Shake-Up; Old Officers Retire

Frank L. Burns, who since the death of his father, Michael F. Burns, has been president of Burns Bros., the well-known New York coal company, resigned as president of that organization June 19. This action followed the annual meeting of the corporation held on the day previous, when a new board of directors was elected.

About a month ago S. M. Schatzkin, who formerly was connected with Burns Bros., sent letters to stockholders requesting their proxies and urging the election of Schatzkin and his associates to the Board of Directors. Under date of June 1 Mr. Burns issued a letter asking for proxies for S. M. Williams, chairman of the Board of Directors, and Allison Dodd, also a member of that body. The Schatzkin interests were victorious.

The newly elected directors are: S. M. Schatzkin, of Schatzkin & Bernstein; William A. Conyngham, vice-president of the First National Bank of Wilkes-Barre; Theodore S. Barber, director of the Lehigh Valley Coal Co.; Harry B. Schooley, vice-president of the Second National Bank of Wilkes-Barre; Kerwin H. Fulton, president of the General Outdoor Advertising Co.; William T. Payne, president of the East Boston Coal Co.; Alexander Levene, lawyer, and Sanders Wertheim, president of the Wyoming Valley Coal Co. and the Steamship Fuel Co. The directors re-elected are: Frank L. Burns, Allison Dodd, S. M. Williams, Mason B. Starring, W. J. Wason, Jr., Alfred T. Holly, Charles Hayden, Moritz Rosenthal and Carl J. Schmidlapp.

Prior to the death of his father, a year ago, Frank L. Burns was connected with the company in various capacities for over twenty years.

In announcing his resignation, Mr. Burns issued a statement, in part as follows:

"I have never been and am not in sympathy with the objects and policies of certain leading members of the group now assuming control and am firmly convinced that in justice to the stockholders I cannot accept the presidency tendered me for the coming year in association with the administrative personnel to be selected by the Wertheim-Schatzkin group. It is with deep regret, in view of the lifelong association of the Burns family with the company, that I feel compelled to tender my resignation to the directors and sever all connections with the company."

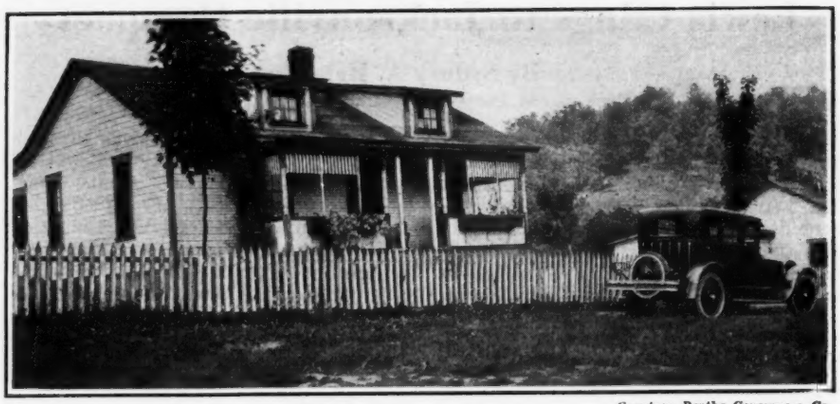
The resignation of H. S. G. Brooks, first vice-president of Burns Bros., was announced June 20.

At the organization meeting of the Board of Directors, held June 22, no successor was elected to the presidency, nor was a new director chosen to fill the place formerly held by Mr. Burns on the board. After the meeting it was stated that this matter would be left open for the time being, "especially in view of the fact that the operations of the company are now in the hands of the new vice-presidents."

As a result of the changes announced in the executive staff after Monday's meeting, S. M. Schatzkin was elected vice-president in charge of accounts. S. A. Wertheim, an associate of Mr. Mr. Schatzkin, was elected vice-president and general manager. Thomas F. Farrell, who was with the Farrell Coal Co. before it was merged with the Burns Brothers company, was re-elected vice-president. George S. Weaver was chosen secretary and treasurer. S. M. Williams, chairman of the Board of Directors, and Moritz Rosenthal, chairman of the Executive Committe, were both re-elected.

In view of these changes it was announced that Grove D. Curtis resigned as vice-president, after having been connected with the company since it acquired the Curtis-Blaisdell Coal Co. in 1913. John V. Chambers resigned as secretary, having held that position since 1918.

The retiring officers have formed the Frank L. Burns Coal Co., with offices at 30 Church St., New York. Mr. Burns is president of the new company, which will engage in the retail business. Associated with him are Grove D. Curtis, H. S. G. Brooks, J. V. Chambers and W. L. Chambers.



Courtesy Bertha-Consumers Co.

Eureka Mine Clerk's Home

J. L. McLain, mine clerk at Eureka mine, and his family have an eye to beauty as well as comfort, as the flower boxes and colorful porch awnings attest.

Labor Trouble Threatens at British Coal Mines

Unless some compromise is reached in the next few weeks a strike or a lockout of British coal miners is almost certain. The Miners' Federation will hold a final conference of delegates from all Britain in London on July 3 to consider action. The mine owners were to submit their proposals for a new wage agreement June 23 and the Miners' Executive committee expected to discuss it the next day.

The basis of the proposed settlement is five days of eight hours, with six hours on Saturday, making a total of forty-six hours weekly, instead of forty-two, as at present. The owners further propose to discontinue the 14 per cent increase in wages which was granted because of the decrease in the number of working hours, due to the lessened production and the establishment of a seven-hour day. The old agreement expires on June 30. The owners plead decreased profits and also say that the present wage scale keeps prices too high.

Hard-Coal Miners Prepare Wage Demands

The tri-district convention of anthracite miners will open in Scranton, Pa., June 29 to formulate demands on wages and working conditions to be incorporated in the new agreement to take the place of the present one, which expires on Aug. 31.

Among the requests for changes in the contract, it is expected, will be a demand for an increase—probably 10 per cent—in wages over the present level for both contract miners and day laborers. Other demands will be for the check-off, payment of contract miners on a gross ton basis instead of by the mine-car as at present; uniformity of rates as between collieries; payment for "dead work," and a reduction in the price charged miners and their families for coal and house rent.

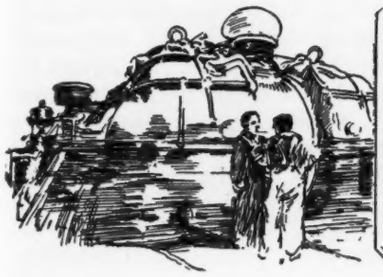
Soon after the close of the convention the operators will submit counter-demands and it is considered highly probable that they will include a proposal for a reduction in wages amounting to between 15 and 20 per cent.

These conflicting propositions will constitute the main points of contention when committees representing the two sides meet in conference probably at Atlantic City, between July 10 and 15.

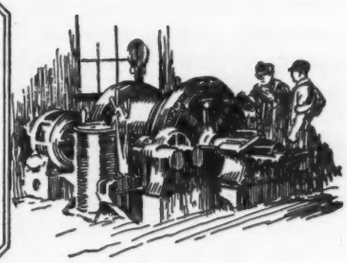
The conference is expected to wrestle with these demands for the greater part of July and August. The operators are reported to have made extensive studies of conditions in the hard-coal region during the last few months and are expected to come into the conference with a mass of statistical data bearing on living costs, their own production costs and wages, all of which will be offered in support of their demand for a substantial reduction.

Representatives of the miners will be equally well armed with supporting data for their wage increase demand and on this point the two sides will go to the mat.

It is considered likely that the men will quit work on Sept. 1 and that then, in the public outcry which presumably will follow, prompted by fear of a serious coal shortage, an agreement will be reached on the existing scale and the present wage continued for another year or two.



Practical Pointers For Electrical And Mechanical Men



Carbon Arc Is Handy and Economical For Melting Brass

It is common for mines of medium size to be equipped with both electric and acetylene welding outfits—the electric for most of the welding and the acetylene principally for cutting. When an acetylene torch is available, the value of a carbon electrode for cutting and other purposes is often forgotten. In many cutting jobs the obtaining of a smooth, narrow cut is of little importance. On such work the use of a carbon arc is the more economical method. The cutting is done in less time and the cost of electrical energy is far below the cost of gas.

W. H. Trosper, electrician at No. 4 mine of the Columbus Mining Co., of Allais, Ky., often uses a carbon arc in his repair work. In addition to the cutting work the carbon arc is employed to melt small quantities of brass for filling worn parts on mining equipment. In one case he put a new lining in a worn axle box, and then he poured brass in below the lining to fill the worn space.

It is interesting to note how the brass is melted and poured without the use of a special ladle or crucible. As shown in Fig. 1, a scrap casting removed from a mining machine serves as a ladle. This casting is set on a small pile of dry sand, but with one corner making contact to the rail. The sand acts as a crucible confining the heat and thus speeding up the melting. A piece of scrap brass is set in the ladle and an arc drawn between this and the carbon electrode, the power being supplied through a resistance from the mine trolley. The scrap brass begins to melt almost immediately and in a few minutes is reduced to a molten mass. The ¾-in. carbon electrodes used for the melting of brass and for cutting are the positivce carbons removed from worn-out, telephone, dry cells.

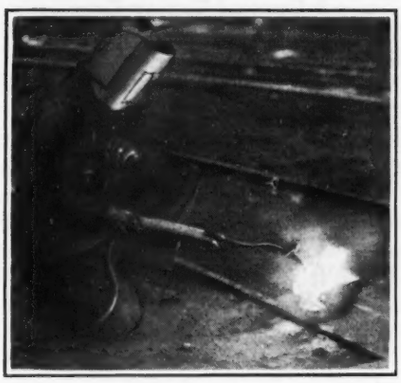


Fig. 2—Miniature Electric Furnace

When a mine shop is equipped with an acetylene torch the advantages of a carbon are for cutting and melting are sometimes forgotten. A small quantity of brass can be melted in a few minutes.

Fig. 1—Ready to Start the Arc

The piece of scrap brass to be melted is set in an old cup-shaped casting which in turn is placed in dry sand with one corner in contact with the rail.

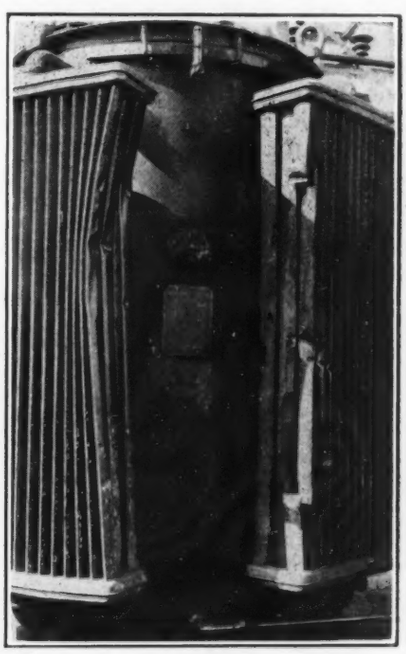
Cyclone Damages Substation

Not even an outdoor transformer substation having a steel structure can withstand a cyclone. At the New Orient mine in southern Illinois it cost approximately $4,000 and required nine days to repair the damage done to such a substation in a few seconds by the March 18 storm.

The function of the New Orient substation is to step the voltage down from 33,000 to 2,300 volts. The transformer capacity consists of three 500-kva. and three 1,667-kva. single-phase units. None of these transformers was upset by the wind but the three larger ones were moved several feet and jammed into the steel columns of the switching structure. The oil was lost from two of the 1,667-kva. transformers. In one case a drain pipe was broken off between the valve and the tank and in the other case an oil cooling tube was cut open. A photograph is shown of the latter transformer, after it had received first aid treatment sufficient to permit it to go back into service.

More than half of the steel columns supporting the overhead switching structure had to be replaced. Practically all—36 to be exact—of the pin insulators were broken, as were also most of the transformer bushings. The two sets of oxide film lightning arresters were torn loose from their foundations and tipped over. In the repair of these, but one good set could be assembled from the parts of the two; so one complete new arrester had to be purchased.

Although it took nine days to get the



Oil Was Lost Through Broken Tube

A job done by the cyclone which hit the New Orient mine. Repairmen working on this transformer cut out the broken section of an oil cooling tube and welded the ends.

damaged transformer substation into shape to furnish power for regular operation, the mine was without power only 26 hr. During this time a temporary, 2,300-volt, wood-pole line was constructed from a neighboring substation to the New Orient mine. This line, however, furnished only enough power to operate the fan and other auxiliary equipment. Although the fan is equipped with a steam drive as an auxiliary to the electric, the mine was without ventilation for a number of hours. Broken pipes and other damage to the steam equipment made the steam engine as useless as was the electric motor.

Traveling Case Protects Meters And Saves Time

A portable meter-testing outfit is something that most men working upon meters feel would greatly simplify their work. This is especially true when the equipment must be shipped or carried from place to place in districts where traveling is difficult. But such an outfit can be made so that it can be carried easily and used quickly. It consists of a portable type Westinghouse watthour meter and a States Co. phantom load suitable for 110 or 220-volt service. This equipment is mounted in a 7x9x16-in. carrying case.

A 220-volt lamp is connected in the circuit with the current coil of the watthour meter and the load side of the phantom load when the first hook-up is made for a test. This is done to eliminate the possibility of damage to the testing set as a result of a wrong connection made by the test man. A single-pole, single-throw, knife switch also mounted in the case is used to short-circuit the lamp.

A Compact Testing Case

The instruments are permanently set in this traveling case and thus are always protected.

There are four leads from the test set equipped with universal test clips. Two of the clips are red to indicate the line side of the meter and two are gray to indicate the load side. When the carrying case is closed it also affords protection to the meters which they would not have otherwise.

Such an arrangement as this is extremely handy around coal mine villages supplied with power by the coal company. The fact that most of the interconnections necessary for making a test are permanent greatly expedites the work of adjusting and checking meters. H. S. EDWARDS.

Pineville, Ky.

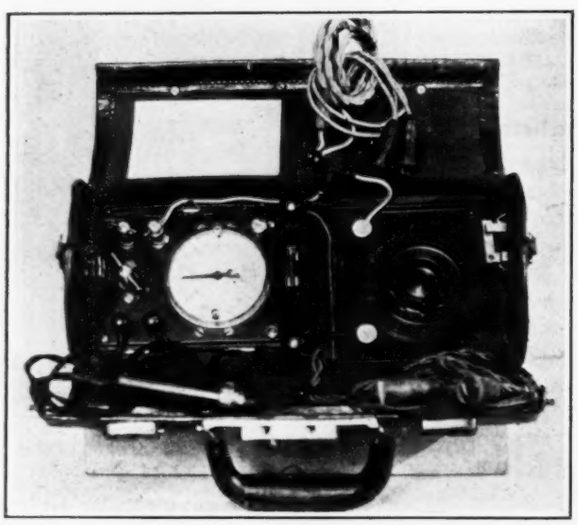
Container Reduces Hazards of Gasoline and Alcohol

In mine repair shops it is common to see a 1-gal. or even a 5-gal. can of gasoline and, in many cases, a can of denatured alcohol stored under a bench near a stove or an open-flame torch. This is especially true in the electric repair shops where gasoline is needed for filling blow torches, for cleaning, and for thinning certain insulating varnishes and compounds. When highly inflammable liquids are poured from ordinary cans in a room with a stove or open flame there is great danger.

Recently the Sunday Creek Coal Co. inaugurated the use of 1-qt. underwriters-approved cans for the handling of gasoline and alcohol in its Corning repair shop. These containers are of such strength that it would take extremely rough handling to damage them to the point of leakage. The one opening which is a combination spout and filling port is normally kept sealed by a spring cap which is opened by pulling and holding a lever conveniently combined with the handle.

They Can Upset and Not Spill

The 1-qt. underwriters approved can, marked "Gasoline," replaced an ordinary unsafe can of 5-gal. capacity which was formerly used in this shop. The decreased fire risk is evident.

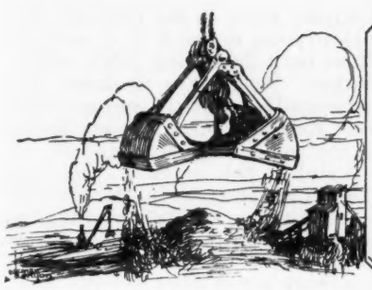


Meter Case

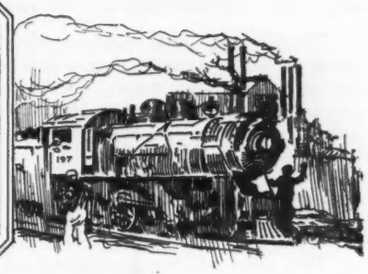
Most of the connections necessary for testing a meter are already made in this satchel Only the exterior connections have to be made thus the work is simplified and can be done quickly.

Good Light Aids Coal Picking

Coal as it comes from the mines in most cases now-a-days is not ready for the market—it must yet be put through a "manufacturing" process. In many respects the moving table terminating in a loading boom here shown and installed at the Sonny Mine of the Georges Creek Coal Mining Co., could probably be duplicated hundreds and possibly thousands of times throughout the country's coal regions. Any process such as this which depends upon human sight, requires adequate lighting. Note the bulbs hanging over the center of the conveyor. They are provided with reflectors that concentrate the light on the work to be done. Scientific lighting thus plays an important role in improving the mine product.



Production And the Market



Soft-Coal Market Drags Near Bottom; Anthracite Trade Quiet

Hand-to-mouth buying characterizes the soft-coal trade in most sections of the country, contracts being few and far between. Nevertheless, little distress coal is in evidence, producers having discovered the evils of shipping on consignment. While there has been little change in price levels they show a slightly firmer tendency in the face of increasing output.

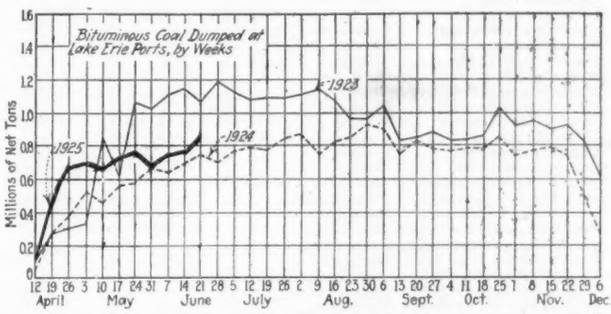
Business was a shade quieter in the Midwest market last week, the steam trade being somewhat stronger with screenings in better position. Domestic demand, however, was far below normal for this season. Southern Illinois shaft mines are almost at a standstill; running time is low and prices unchanged. Strip mines are doing better. Several Indiana co-operative mines have been reorganized to conform with the Terre Haute agreement and have increased working forces and output. Kentucky coal, particularly from the Hazard field, is moving well to the lakes. The movement from western Kentucky, however, is far from heavy and running time is low, as are prices. The situation continues to improve at the head of the lakes, where demand from iron mines and factories is picking up. All grades are selling to a certain extent in Utah, the larger sizes with some difficulty. In Colorado and the Southwest the trade is simply marking time.

Heavy Traffic Through Cincinnati Gateway

A large volume of coal is moving through the Cincinnati gateway—more than 13,000 cars in each of the last two weeks, one-quarter of it destined for the lakes. Prices are slightly less firm. Southern and eastern Ohio are dull but hopeful. Conditions at Pittsburgh are much the same, but prospects are considered better. New England and the other Eastern markets continue to drag, with only fitful changes.

The anthracite market is flat. All domestic sizes are plentiful and deliveries are almost uniformly prompt. Stove continues to lead in demand. Egg is active. Chestnut and pea are moving slowly. Prices remain at last week's level, but independents find it hard to get more than company prices except in the case of stove. Barley is the most active of the steam sizes, buckwheat and rice having eased. Wage talk next week may tend to quicken interest in hard coal.

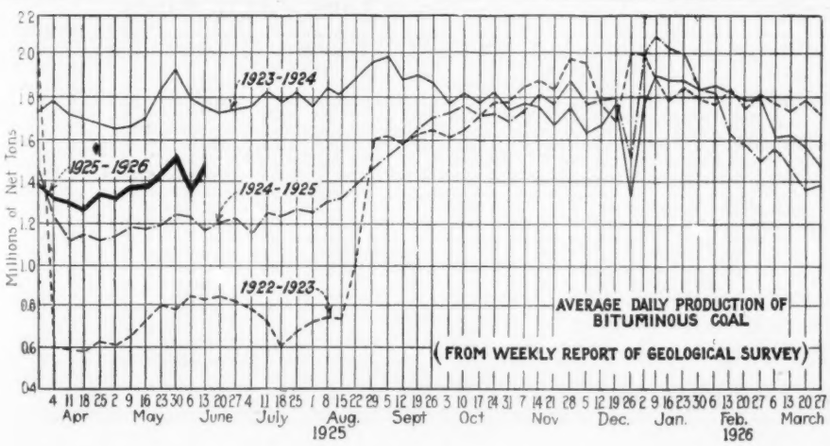
Bituminous coal output in the week ended June 13 is estimated by the Geological Survey at 8,616,000 net



tons, compared with 8,372,000 tons in the previous week, as shown by revised figures. Anthracite production in the week ended June 13 was 1,870,000 net tons, compared with 1,674,000 tons in the preceding week.

Coal Age Index of spot prices of bituminous coal rose one point during the past week, standing on June 22 at 161, the corresponding price of which is $1.95.

Dumpings at Lake Erie ports in the week ended June 21, according to the Ore & Coal Exchange, were: Cargo, 785,218 net tons; steamship fuel, 43,580—a total of 828,798 net tons, compared with 750,550 tons in the preceding week. Hampton Roads dumpings in the week ended June 18 totaled 489,944 net tons, compared with 395,386 tons in the previous week.



Estimates of Production

(Net Tons)

	1924	1925
BITUMINOUS		
May 30	6,912,000	8,141,000
June 6 (*a*)	7,615,000	8,372,000
June 13 (*b*)	7,383,000	8,616,000
Daily average	1,231,000	1,436,000
Cal. yr. to date	(*c*) 214,730,000	214,706,000
Daily av. to date	1,546,000	1,542,000
ANTHRACITE		
May 30	1,294,000	1,723,000
June 6	1,846,000	1,674,000
June 13	1,823,000	1,870,000
Cal. yr. to date	(*c*) 41,404,000	40,803,000
COKE		
June 6 (*a*)	150,000	128,000
June 13 (*b*)	131,000	136,000
Cal. yr. to date	(*c*) 5,748,000	4,972,000

(*a*) Revised since last report. (*b*) Subject to revision. (*c*) Minus two days' production to equalize number of days in the two years.

Midwest Steam Market Firmer

The Chicago coal market proved even quieter than usual last week, though the steam market is perhaps a little better than for several weeks, as the condition of screenings is much stronger than heretofore. Prices have not advanced much, it is true, but there is no distress coal offered. Despite the fact that the country is consuming more coal than it is producing, purchasing agents are giving no thought to their future requirements and are continuing to buy on the open market. Prices are certainly attractive enough to tempt them, within reason, in this direction.

The demand for domestic coals is far below normal at this time of the year as compared with other years. Franklin County operators say they have between 800 and 900 cars of 6-in. lump coal on track unsold, with little prospect of moving it promptly. Contrary to the procedure of past years, the Franklin County operators have not increased their prices month by month. They set a price of $2.75 as of April 1 on their 6-in. lump and have not changed this price to date. Whether or not they will change it July 1 is doubtful. Eastern Kentucky operators, who planned on a 15c. advance as of July 1, have come to the conclusion that this action would be unwise and are going to continue at their June circular until July 15 at least. It is rumored that the Pocahontas people will leave their quotations "as is" for the time being.

There is no general buying trend in the market. A few scattered orders continue to come in and it is expected that this condition will continue until the buying public wakes up and comes into the market. Despite the weakness of the coal market, there is practically no unsold coal on track in Chicago. Even the West Kentucky operators are realizing the fallacy of shipping coal on consignment, and all but a few of them have put a stop to this practice. Only a few cars of Pocahontas mine-run are on track in Chicago unsold.

In southern Illinois a few mines are still working, most of them crushing coal, as practically no sizes are moving out. The strip mines are doing considerably better, but some of them refused to work a few days recently because they would not take less than $1.75 for mine-run. Railroad tonnage seems to be pretty good with the strip mines and weak with the shaft mines. All operating mines have plenty of coal unbilled excepting steam. Prices are unchanged.

In the Duquoin field one mine is operating three days a week on steam contracts, getting about 65,000 tons a month and crushing most of its coal, and a couple of other mines are getting one and two days a week. No change in prices has taken place. In the Mt. Olive field things are at a standstill. About three hundred cars of railroad coal a week is moving and the rest of the tonnage produced is crushed for steam contracts. Practically no domestic is moving. The Standard field continues as it has been, selling coal below cost and working one and two days a week. Railroad

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	June 23 1924	June 8 1925	June 15 1925	June 22 1925†
Smokeless lump	Columbus	$3.85	$2.85	$2.85	$2.75@$3.00
Smokeless mine run	Columbus	2.20	1.85	1.85	1.75@ 2.00
Smokeless screenings	Columbus	1.30	1.30	1.30	1.25@ 1.40
Smokeless lump	Chicago	3.60	3.10	3.10	3.00@ 3.25
Smokeless mine run	Chicago	2.00	1.95	1.95	1.55@ 2.10
Smokeless lump	Cincinnati	3.85	3.00	2.85	2.75@ 3.00
Smokeless mine run	Cincinnati	1.85	2.00	1.85	1.75@ 2.00
Smokeless screenings	Cincinnati	1.50	1.25	1.25	*1.20@ 1.25*
*Smokeless mine run	Boston	4.30	4.25	4.25	4.15@ 4.40
Clearfield mine run	Boston	2.00	1.75	1.75	1.65@ 1.90
Cambria mine run	Boston	2.45	2.10	2.10	2.00@ 2.25
Somerset mine run	Boston	2.15	1.95	1.95	1.85@ 2.10
Pool 1 (Navy Standard)	New York	2.70	2.55	2.55	2.40@ 2.70
Pool 1 (Navy Standard)	Philadelphia	3.00	2.60	2.60	2.45@ 2.75
Pool 1 (Navy Standard)	Baltimore	....	1.85	1.85	1.80@ 1.95
Pool 9 (Super. Low Vol.)	New York	2.20	2.00	2.00	1.85@ 2.15
Pool 9 (Super. Low Vol.)	Philadelphia	2.20	2.00	2.00	1.85@ 2.20
Pool 9 (Super. Low Vol.)	Baltimore	1.85	1.75	1.75	1.65@ 1.85
Pool 10 (H.Gr.Low Vol.)	New York	1.85	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.85	1.70	1.70	1.60@ 1.85
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.65	1.60	1.60	1.55@ 1.65
Pool 11 (Low Vol.)	New York	1.60	1.55	1.55	**1.45@ 1.70**
Pool 11 (Low Vol.)	Philadelphia	1.50	1.55	1.55	1.50@ 1.60
Pool 11 (Low Vol.)	Baltimore	1.55	1.40	1.40	1.35@ 1.45
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	1.50	1.50	1.40@ 1.60
Pool 54-64 (Gas and St.)	Philadelphia	1.55	1.50	1.50	1.45@ 1.60
Pool 54-64 (Gas and St.)	Baltimore	1.50	1.45	1.45	1.40@ 1.50
Pittsburgh sc'd gas	Pittsburgh	2.40	2.40	2.40	2.30@ 2.50
Pittsburgh gas mine run	Pittsburgh	2.10	2.15	2.15	2.10@ 2.25
Pittsburgh mine run (St.)	Pittsburgh	1.85	1.95	1.95	1.90@ 2.00
Pittsburgh slack (Gas)	Pittsburgh	1.20	1.55	1.45	**1.40@ 1.60**
Kanawha lump	Columbus	....	2.10	2.10	*1.75@ 2.00*
Kanawha mine run	Columbus	....	1.40	1.40	1.35@ 1.50
Kanawha screenings	Columbus	....	1.10	1.10	*1.00@ 1.15*
W. Va. lump	Cincinnati	2.25	2.25	2.10	**2.10@ 2.50**
W. Va. gas mine run	Cincinnati	1.35	1.50	1.45	**1.40@ 1.65**
W. Va. steam mine run	Cincinnati	1.35	1.35	1.40	1.35@ 1.50
W. Va. screenings	Cincinnati	.90	1.05	1.10	**1.10@ 1.20**
Hocking lump	Columbus	2.45	2.15	2.15	2.00@ 2.35
Hocking mine run	Columbus	1.70	1.50	1.50	1.40@ 1.65
Hocking screenings	Columbus	1.35	1.30	1.30	1.20@ 1.40
Pitts. No. 8 lump	Cleveland	2.35	2.25	2.20	1.90@ 2.50
Pitts. No. 8 mine run	Cleveland	1.85	1.85	1.85	1.85@ 1.90
Pitts. No. 8 screenings	Cleveland	1.10	1.35	1.40	**1.40@ 1.50**

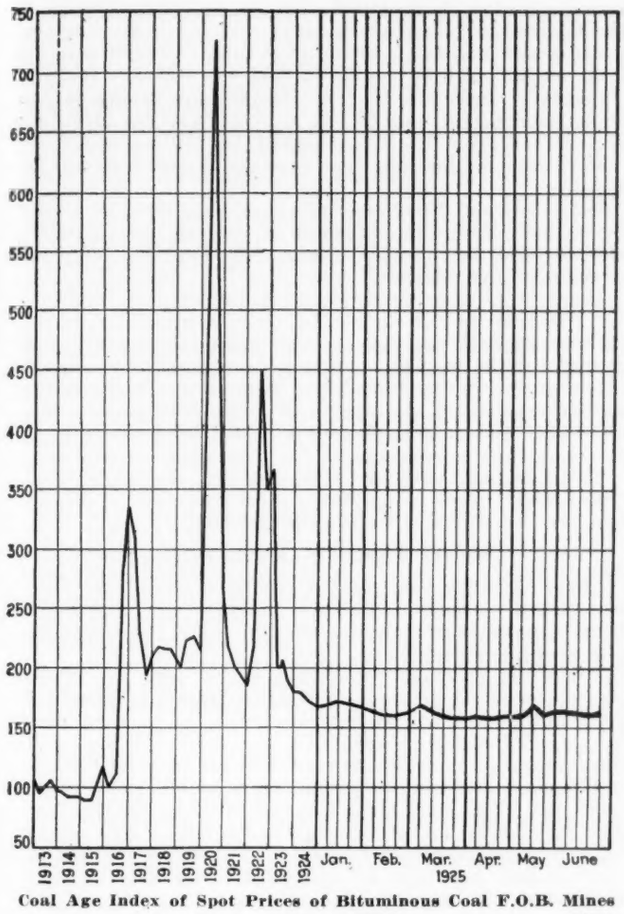
Midwest	Market Quoted	June 23 1924	June 8 1925	June 15 1925	June 22 1925†
Franklin, Ill. lump	Chicago	$2.75	$2.60	$2.60	$2.50@$2.75
Franklin, Ill. mine run	Chicago	2.35	2.35	2.35	2.25@ 2.50
Franklin, Ill. screenings	Chicago	1.80	2.10	2.10	2.00@ 2.25
Central, Ill. lump	Chicago	2.35	2.35	2.35	2.25@ 2.50
Central, Ill. mine run	Chicago	2.10	2.10	2.10	2.00@ 2.25
Central, Ill. screenings	Chicago	1.55	1.75	1.75	1.65@ 1.90
Ind. 4th Vein lump	Chicago	2.85	2.60	2.60	2.50@ 2.75
Ind. 4th Vein mine run	Chicago	2.35	2.35	2.35	2.25@ 2.50
Ind. 4th Vein screenings	Chicago	1.80	1.90	1.85	**1.75@ 2.00**
Ind. 5th Vein lump	Chicago	2.35	2.25	2.25	2.15@ 2.40
Ind. 5th Vein mine run	Chicago	2.10	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Chicago	1.60	1.50	1.50	1.40@ 1.60
Mt. Olive lump	St. Louis	2.85	2.50	2.50	2.50
Mt. Olive mine run	St. Louis	2.50	2.25	2.25	2.25
Mt. Olive screenings	St. Louis	2.00	1.75	1.75	1.75
Standard lump	St. Louis	2.15	2.25	2.25	2.25
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.90
Standard screenings	St. Louis	1.45	1.70	1.70	1.65@ 1.75
West Ky. block‡	Louisville	2.00	1.60	1.50	1.40@ 1.65
West Ky. mine run	Louisville	1.55	1.30	1.15	**1.10@ 1.40**
West Ky. screenings	Louisville	1.55	1.15	1.15	*1.00@ 1.15*
West Ky. block‡	Chicago	1.85	2.00	2.00	1.90@ 2.15
West Ky. mine run	Chicago	1.60	1.30	1.30	**1.15@ 1.60**
South and Southwest					
Big Seam lump	Birmingham	3.00	2.40	2.10	2.00@ 2.25
Big Seam mine run	Birmingham	1.90	1.75	1.75	1.50@ 2.00
Big Seam (washed)	Birmingham	2.00	1.85	1.85	1.75@ 2.00
S. E. Ky. block‡	Chicago	2.10	2.25	2.25	2.15@ 2.40
S. E. Ky. mine run	Chicago	1.60	1.70	1.70	1.60@ 1.85
S. E. Ky. block‡	Louisville	2.10	2.20	2.25	2.00@ 2.50
S. E. Ky. mine run	Louisville	1.50	1.30	1.50	**1.35@ 1.75**
S. E. Ky. screenings	Louisville	.95	1.05	1.10	1.00@ 1.25
S. E. Ky. block‡	Cincinnati	2.50	2.35	2.25	**2.30@ 2.50**
S. E. Ky. mine run	Cincinnati	1.45	1.45	1.45	**1.35@ 1.75**
S. E. Ky. screenings	Cincinnati	.90	1.05	1.10	1.00@ 1.25
Kansas lump	Kansas City	4.50	4.00	4.00	4.00
Kansas mine run	Kansas City	3.50	3.00	3.00	*2.75@ 3.00*
Kansas screenings	Kansas City	2.50	2.60	2.60	2.50@ 2.75

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**, declines in *italics*.
‡ The term block is used instead of lump in order to conform to local practice, but the same coal is being quoted as heretofore.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	June 23, 1924 Independent	June 23, 1924 Company	June 15, 1925 Independent	June 15, 1925 Company	June 22, 1925† Independent	June 22, 1925† Company
Broken	New York	$2.34	.....	$8.00@$8.85	.....	$8.10@$8.70	.....	$8.10@$8.70
Broken	Philadelphia	2.39	.....	8.70@ 8.85	.....	8.60	.....	8.60
Egg	New York	2.34	$8.75@$9.25	8.45@ 8.85	$8.50@$8.75	8.45@ 8.70	$8.50@$8.75	8.45@ 8.70
Egg	Philadelphia	2.39	8.80@ 9.60	8.80@ 8.85	8.70@ 9.30	8.50@ 8.70	8.70@ 9.30	8.50@ 8.70
Egg	Chicago*	5.06	7.86@ 8.00	7.83@ 7.90	7.86@ 8.50	7.44@ 8.18	7.86@ 8.50	7.44@ 8.18
Stove	New York	2.34	9.00@ 9.25	8.45@ 9.10	8.90@ 9.25	8.95@ 9.20	8.90@ 9.25	8.95@ 9.20
Stove	Philadelphia	2.39	9.15@ 9.80	8.85@ 9.03	9.30@ 9.65	8.95@ 9.10	9.30@ 9.65	8.95@ 9.10
Stove	Chicago*	5.06	8.17@ 8.30	8.13@ 8.25	8.22@ 8.70	7.92@ 8.10	8.22@ 8.70	7.92@ 8.10
Chestnut	New York	2.34	8.75@ 9.25	8.45@ 8.95	8.35@ 8.65	8.45@ 8.70	8.35@ 8.65	8.45@ 8.70
Chestnut	Philadelphia	2.39	8.85@ 9.70	8.80@ 8.85	8.70@ 9.55	8.60@ 8.70	8.70@ 9.55	8.60@ 8.70
Chestnut	Chicago*	5.06	8.00@ 8.13	8.08@ 8.13	8.14@ 8.35	7.69@ 8.00	8.14@ 8.35	7.69@ 8.00
Pea	New York	2.22	5.00@ 5.50	5.50@ 6.00	4.75@ 5.50	5.00@ 5.70	4.75@ 5.50	5.00@ 5.70
Pea	Philadelphia	2.14	5.75@ 6.25	5.75@ 6.00	5.50@ 5.75	5.00@ 5.40	5.50@ 5.75	5.00@ 5.40
Pea	Chicago*	4.79	5.13@ 5.45	5.36@ 5.91	4.91@ 5.36	4.69@ 5.00	4.91@ 5.36	4.69@ 5.00
Buckwheat No. 1	New York	2.22	2.15@ 2.75	3.00@ 3.15	2.00@ 2.50	2.50	2.00@ 2.40	2.50
Buckwheat No 1	Philadelphia	2.14	2.50@ 3.00	3.00	2.15@ 2.75	2.50	2.15@ 2.75	2.50
Rice	New York	2.22	1.75@ 2.13	2.25	1.75@ 2.00	2.00	1.75@ 2.00	2.00
Rice	Philadelphia	2.14	2.00@ 2.25	2.25	1.85@ 2.00	2.00	1.85@ 2.00	2.00
Barley	New York	2.22	1.15@ 1.50	1.50	1.40@ 1.50	1.50	1.40@ 1.50	1.50
Barley	Philadelphia	2.14	1.50	1.50	1.40@ 1.50	1.50	1.40@ 1.50	1.50
Birdseye	New York	2.22	.....	1.60	1.50@ 1.65	1.60	.....	1.60

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**; declines in *italics*.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1925			1924
	June 22	June 15	June 8	June 23
Index	161	160	161	166
Weighted averaged price	$1.95	$1.94	$1.95	$2.01

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke; 1913-1918," published by the Geological Survey and the War Industries Board.

tonnage is fair and such mines as can are crushing. There are plenty of "no bills," with no demand and no change in prices.

Warm weather at St. Louis has stopped entirely the little storage movement of coal that was planned. There is nothing doing and the yards are pretty well filled. The most disappointing feature is the falling off of the demand for anthracite. It is estimated that this year this tonnage in St. Louis will not be over 15,000 and may run as low as 10,000 tons. This is a dropping off of between 20 and 25 per cent, and the same condition prevails throughout all the Midwest territory. Smokeless also is falling off and coke is not taking as was expected, although coke has supplanted anthracite to some extent. No Arkansas coal sells. It is estimated that oil burners are going in about ten to fifteen a day in St. Louis and suburbs, mostly affecting the higher grades of coal. A little Standard storage is being put in for apartment houses. Wagonload steam is unusually quiet and carload is active only to the extent of a demand a trifle larger than the natural supply at this time, but with no change in prices. Country domestic is unusually quiet and steam is not a factor.

Much Kentucky Coal Moving to Lakes

Movement of Kentucky coal to the Lakes is said to be larger than last year and the Harlan field is playing an important part. So much coal is now available that it is almost entirely a question of price, as plenty of quality tonnage is being offered. Domestic demand continues light, and retailers, except in sections far North, are not showing much interest. Demand from general utility and industrial interests continues quite active.

Western Kentucky movement has been far from heavy and mines continue on a slow basis, getting a little Southern business, some from the central section, including Michigan and Chicago territory, but nothing like the volume that had been anticipated. Prices on western Kentucky coal continue very low, screenings being a shade weaker at $1.05@$1.15; mine-run, $1.10@$1.25; nut, egg, lump and block all bunched at $1.40@$1.65 for domestic, with some steam nut selling at mine-run prices.

Eastern Kentucky prices are quite steady, mine-run commanding a level from $1.35 to as high as $1.75 for fine gas coal, with block, $2@$2.50, the top being around $2.25 on the bulk of production; egg and lump, $1.75@$2.10; nut, $1.50 @$1.75, and screenings, $1@$1.25. The screenings market has held up much better than had been generally expected, due to good demand industrially.

Outlook Improves in Northwest

The feature of the Duluth market last week was the notable improvement in demand from the iron mines of Minnesota. It looks as if there would be a good mining season, with a pick-up in sales of coal. Factories are increasing operation, and undoubtedly will be in the market seriously for coal in a short time.

The market is firm all through the list at last week's prices. Pocahontas continues at $7 with screenings of this grade at $4.25. The docks seem to be well cleaned up in screenings, because of the fact that they have not made many, as most of the shipments have been mine-run.

Dealers are still buying hand to mouth. They look for a change in prices, and are pinning their hopes on the possibility of more mines going off the union list.

The railroads are doing their part to avoid congestion, taking much coal from the docks. Business, despite complaints of dock men, seems to be about average, and the general outlook is far from depressing.

Shipments picked up a little last week, when 38 cargoes arrived from lower lake ports, but of these only two were hard coal. Fourteen cargoes are reported on the way, of which one is hard coal. While two more cargoes arrived than last week, much less anthracite came. This dropping off in hard coal is brought about through the fact that much hard has already been brought up, and also by the fact that there will undoubtedly be a smaller amount of hard sold this year than last because of the popularity of Pocahontas.

There has been no development of note at the Twin Cities for some time. Buying continues to be deferred as much as possible. The price schedule seems to be stable enough, largely because there is no keen effort being made to force business. All-rail dealers recognize that there is nothing to be gained from concessions, and work to keep their stocks in transit down to a point that will obviate any need of serious cutting. Their prices remain the same on the different grades as heretofore.

The Milwaukee trade reports no change from the summer dullness that has characterized the market for weeks past. Demand is at a low ebb and prices are unchanged. Coal is coming up the lakes quite steadily to meet demand that will develop as the year progresses. Thus far in the season of navigation Milwaukee has received by cargo a total of 968,073 tons—292,455 tons of anthracite and 675,618 tons of bituminous coal.

Southwest Marks Time

The Southwest is still marking time, waiting for something to happen—it doesn't know just what. Virtually no coal is being mined in Kansas except on contract, and contracts aren't plentiful. Most dealers won't even quote prices on Arkansas, though a little coal is being mined there, as in Kansas, on contract. In Oklahoma the only mines working are those paying the 1917 scale, and at these union interference is increasing. There is a light threshing demand for Kansas coal, but not sufficient to have any effect on the market. Operators assert and reassert that they can't run profitably at the 1924 scale, and miners, except in Oklahoma, where some have accepted a reduced wage, insist they will not work for less.

Conditions in Colorado are growing a little worse so far as orders for domestic coal are concerned and it is expected

that the balance of June and the month of July probably will show the greatest decrease in tonnage in the history of the Colorado coal business. Orders are at a standstill awaiting the effective date of rate reductions to Missouri River territory. Prices will be advanced 25c. a ton July 1. The new prices for Walsenburg and Canon City domestic lump coal will be $5; nut, $4.50; washed pea, $3; high-grade Crested Butte anthracite Nos. 1 and 2, $7; Nos. 3 and 5, base burner size, $7.25; Trinidad coke, $7.50; Trinidad nut coke, $6.

The coal market in Utah is about normal for the season. A little coal in all grades is selling, but larger sizes are being moved with more difficulty than the smaller sizes. Price talk has switched from a discussion of possible lower prices to speculation regarding an all-round increase. No one, however, expects this change to come about till September. Independent dealers say they will be able to offer no storage prices and they are also opposed to carrying accounts as long as they have been carrying them in the past. The mine-owned yards, however, are storing heavily, and were it not for this they would find it difficult to take care of the demand for slack.

Heavy Movement to Cincinnati

At Cincinnati last week more than 13,500 loaded cars of coal passed from the south to the north of the Ohio River, according to the figures of the regional director for the American Railway Association, and another 13,000-car week was in prospect as this was written. Of this about one-fourth was destined for the lakes. An embargo against the Toledo docks in the early part of the week has not had any effect thus far.

While prices have not moved perceptibly during the week they lack firmness of tone. The uncertainty in block and domestic sizes continues. Coal can be had around $2.10 and some ask $2.50 for the larger sizes. Some representatives say they are sold up, while others seem eager to sell. Stove and 2-in. are a little more firm, but mine-run developed the most strength in the past week. Steam stuff is hard to get between $1.35 and $1.50 while byproduct and finer grades of gas go all the way up to $1.75 on the asked price. Slack is unsettled, the price ranging all the way from $1 to $1.25 with the spot market holding at $1.10@$1.15.

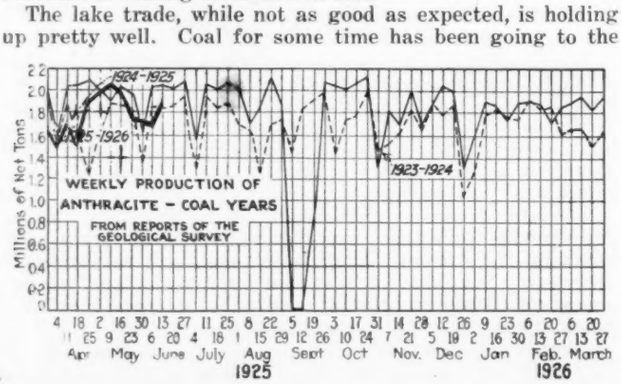
Smokeless seems to be having a hard time to find its level. The asked price is around $3, but it is possible to buy good grades of lump at the egg price of $2.75. Stove coal prices are off; the best of the market seems to be $2.25 while nut is being sold—West—on a basis of the asked price of mine-run. While high-volatile mine-run has strengthened, the same spread of $1.75@$2 still persists for smokeless. The screenings market, because of the increased make of domestic, also is inclined to feel around for a place to solidify itself. Quotations this week cannot be better than $1.20@$1.25.

Retail business has slumped off to midsummer dullness so far as Cincinnati is concerned.

River business has picked up a little with the excellent rains between Louisville and the mouth of the Kanawha. Tonnage down last week increased about one-quarter over the usual 12,000 tons a week.

A slight decrease in the demand for coal was noted at Columbus last week, but operators and dealers are still optimistic. Steam users have slackened, and utilities are pretty well stocked and are not in the market. While some dealers are busy filling railroad contracts not much new business is coming from this source.

The lake trade, while not as good as expected, is holding up pretty well. Coal for some time has been going to the lakes to dealers having their own docks, but lately those who haven't docks are also sending coal up to fill contracts placed some time ago. In the meantime new contracts are being made, which is helping to keep the industry going.



Domestic trade is still slow. Dealers are trying to persuade the domestic user to buy now, and get the advantage of price and avoid delay in shipment, but without much success. Prices on domestic coal have again gone up over last month.

Smokeless and Hocking coal are holding firm at former levels; both Kanawha lump and screenings have slumped; eastern Ohio remains the same, while Pomeroy lump and screenings have advanced.

There is no discernible change in the eastern Ohio market situation so far as demand is concerned, but during the current week coal has been a little more plentiful, indicating that the market is not readily absorbing the volume reaching it. Stripper coal has been more freely offered although there are no reports of distress tonnage. Deep-mine slack and screenings are scarce and bring about 5c. per ton more than a week ago.

There is practically no retail activity and none of the mines which were closed down indefinitely a month or so ago have been able to resume operations.

Better Outlook at Pittsburgh

The Pittsburgh coal market continues very dull, but it has grown no worse. There is scarcely any open-market inquiry, consumers simply taking tonnages from their regular sources of supply.

Prices are practically inflexible, having long ago reached the minimum. Increased competition from non-union fields for months past has merely restricted the area of distribution of Pittsburgh coal. Of the relatively few mines operating in the district scarcely any are running full.

Prospects for coal consumption are much better than 30 days ago. The steel trade has had nothing like the slump that was feared and is holding pretty well to a 70 per cent rate in production and shipments. In view of the fact that steel buyers are bent on liquidating such stocks as they may have, this shows a high rate of consumption of steel, hence a high degree of industrial activity at the moment, and there is no proof there will be a decrease.

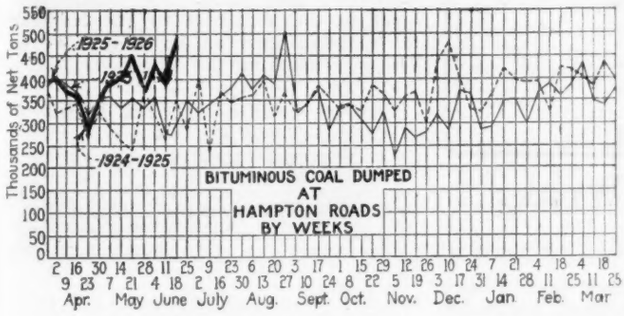
The Buffalo coal situation continues to disturb the trade. Hard- and soft-coal shippers are speculating on chances of an anthracite strike. Somehow ideas vary as to the utility of a strike in advancing bituminous prices and inducing anthracite consumers to buy. A few cents more for bituminous would be quite satisfactory to the wholesaler, though it is felt that a big improvement is necessary to put the operator on the profit side.

Trade Drags in New England

The market for steam coal in New England continues to drag along with little or no encouragement. So large a proportion of the coal now consumed here originates in the smokeless districts that the whole situation as to price turns on the volume of Pocahontas and New River that is sent to Hampton Roads. Quotations vary according to the individual requirements of the various agencies, and because any one of them is likely at any time to need outlet for surplus production the buyer may safely rely for the present upon bargain figures. Most industries here are suffering so acutely from depression in their own lines that there is little inclination to buy for next winter's use, and what spot coal is placed is the result of diligent forcing on the part of factors and sales agents.

No change is reported in the quotations at Hampton Roads that have ruled for several weeks. The range is still $4.15@$4.40 for No. 1 Navy standard per gross ton, f.o.b. vessel, with second grades to be had from $4. It might have been expected that the low net return would oblige a large number of operators to shut down, but from the smokeless districts the flow of coal continues in about the same volume that has been characteristic all season. The least indication of better prices, if only momentarily induced by less accumulations at the piers, increases output for the time being, only to relax again when car service and lower returns apply.

Rehandling factors at Boston, Providence and Portland are governed by much the same conditions, although receipts at this end are not in such volume as earlier in the season. Several of the smaller houses who were splitting


Thousands of Net Tons
1925-1926
1924-1925
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar

cargoes have withdrawn, and most of the tonnage handled in this way is through wholesalers who have plants of their own and are not so often under the same compulsion to move coal. On-car prices therefore are on a slightly more favorable basis here than at Hampton Roads; $5.20@$5.35 seems a fair gage of the spot market at Boston, with Providence prices ranging about 10c. less.

Business Spotty at New York

Conditions are unchanged in the soft-coal market at New York. Coal is moving quietly, reserve stocks being drawn upon to furnish the deficiency between receipts and requirements for consumption.

Business continues spotty, but is good in places. Many coal men believe the worst is over and while there may not be any noticeable improvement for a few weeks, the turn for the better is about due. Buying is on a hand-to-mouth basis. Consumers are beginning to see the bottom of their coal bins, however, and may soon realize that replenishment must begin shortly.

At Philadelphia there has been a slow increase in demand, but by no means in such a volume as to make any one cheerful about it. Utility companies are buying in their customary volume in building up summer storage stocks. With the general freight movement above the average, the railroads also are good customers.

Very little except non-union coal is coming to this market. Quite a few mines which had been closed for weeks are gradually reopening on a non-union basis, and this is giving a better tone to the producing end of the business.

The market at the piers is unchanged, but some business usually turning up in the summer time is coming along and is adding its mite to the improvement. Bunkering is holding its own, and some are inclined to believe that it has actually improved.

The Baltimore market continues dull, industrials apparently being content to let the future take care of itself when it comes to ordering soft coal for next winter's needs. The export fuel situation also seems to have fallen flat again, not a shipment of coal having left port since June 5, although a cargo of 1,685 tons coke is recorded as of June 11.

There is little activity in the Birmingham market. Inquiry from industrial sources is light and consumers are buying in the spot market as immediate requirements necessitate. There is no contracting worth mentioning, as practically all railroads have taken care of their fuel requirements for another year and it seems that about all the industrial buyers have made contracts that expect to do so in the near future. Mines are dependent for operation on contract deliveries and such spot business as can be picked up from time to time.

The domestic situation has shown no improvement so far this month. Disposition of lump and other sizes of domestic fuel necessitates a great deal of effort on the part of operators and their brokers, it being possible to move all the higher grade coals, but not without a great deal of delay and solicitation. There is no demand worth mentioning for medium and low-grade domestic coal and much of it is being crushed and applied on steam orders.

There is no quotable change in mine prices, though of course a limited amount of inferior product can be bought at shaded figures. Prices on all standard grades of steam and domestic are reported stable on the basis of schedules which have ruled for some time.

Hard-Coal Trade Quiet

The anthracite market at New York is quiet. There is no rush of orders and independent operators are hardly able to obtain more than company prices for their product except for stove.

All domestic coals are plentiful and there is no delay in deliveries unless it is stove, which continues to lead in demand. Egg is very active while chestnut is hard to move except along the line, where it finds a good market. Pea coal is slow to move but quotations are firm on last week's basis.

Strike talk, which ought to be strong early next month, is expected to create much more activity both in production and sales.

Of the steam sizes barley is the most active. Buckwheat and rice are easier than last week.

The Philadelphia anthracite market is decidedly flat. The little coal that dealers are receiving is largely from company shippers, due to the difference in price as compared with independent coal. This is not sufficient to keep the mines working full time, however, and all interests are losing production on this account.

Consumer interest seems to have waned almost to the vanishing point, and nothing seems likely to awaken it except news from the conference between the miners and operators soon to be in session.

It is thought that some dealers are hanging back thinking that there might be a price break on the part of the independents, but up to this time the individuals have held firm. Most dealers have full stocks and as a matter of fact do not want to see a break.

Steam sizes are in only fair demand and the expected storing by the large users has not as yet developed. Storage yards of company producers have at least a million tons in stock and more is being added.

At Baltimore few orders for future supplies of hard coal are coming in from householders at this time. The practice by some dealers of putting up anthracite in paper bags, weighing anywhere from 10 to 20 lb. and charging a standard price for it has met with a decided jolt by the passage of an ordinance, signed by the Mayor of this city, and prepared and approved by a number of coal dealers, requiring that coal to be sold in small quantities must be put up in containders holding 20, 40 or 80 lb. Under the old law poor people frequently paid as high as $35 a ton for coal, it is said.

Activity is moderate in the Buffalo hard-coal market, as demand is light everywhere. The lake trade was a trifle more brisk last week, shipments for the week being 60,600 tons, of which 24,700 tons cleared for Duluth and Superior, 18,900 tons for Chicago and 17,000 tons for Milwaukee. Freight rates continue at 55@60c. to Chicago, 50c. to Milwaukee and 40c. to Duluth and Superior.

Connellsville Coke Market Inactive

The Connellsvills coke trade last week lost out when a merchant furnace in the Shenango Valley (Sharpsville) brought third-quarter byproduct coke from a Youngstown steel interest, the trade inferring that the price was about $2.75, Connellsville basis. Recently it has been plain that third-quarter Connellsville coke could be bought at $3 and it is now suspected that this price could be shaded a little.

A few negotiations are in progress for furnace coke on contract, but nothing has been closed in the past week except the above contract, which the Connellsville industry lost.

Buying of spot furnace coke has been confined to small lots, for non-metallurgical use, and the market is a shade easier, at $2.75@$2.85, against $2.80@$2.85 a week ago.

Standard foundry coke for spot shipment remains at $3.75@$4.25, with sales averaging closer to the lower figure. No little coke is being sold at $3.50 for foundry use, this being 48-hour, not particularly well selected and thus not standard at all.

Car Loadings, Surplusages and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended June 6, 1925	994,874	151,566
Previous week	920,514	148,700
Week ended June 7, 1924	910,793	143,350

	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
June 8, 1925	318,805	125,785	.....	.....
May 31, 1925	323,624	133,559	.....	.....
June 7, 1924	356,723	172,311	.....	.....

Foreign Market And Export News

British Coal Trade Quiet and Weak; More Collieries Close

All branches of the British coal market are extremely quiet and a weak tone predominates. Buyers seem to be well supplied as a result of last month's fillip in demand, and only odd cargo inquiries are passing for prompt loading. Business is inactive over the second half of the month. Cargoes due for shipment before the holidays were dispatched with ease and the docks are now bare of tonnage, with 40 per cent of the tipping appliances idle. Collieries are offering adequate supplies for immediate delivery despite the three days' stoppage at the pits and a loss of approximately 500,000 tons of output. Inquiries from France are at the lowest point of the year, and there is nothing doing with Holland, Belguim or Germany. Business remains quiet with Italy, and, except where heavy price cuts are made, depots and South America are buying little.

Unemployment in Great Britain, which was said to total 1,247,300 on June 6, increased a further 43,894 during the succeeding week, largely owing to the closing of more collieries.

At Newcastle prices showed a depreciation during the week, though it seemed scarcely possible that there would be any further reductions in some sections. A big Swedish railway's contract for about 140,000 tons spread over several months obtained by Newcastle merchants is the only event of much interest.

Production by British collieries in the week ended June 6, a cable to *Coal Age* states, totaled 3,000,000 tons, compared with 4,680,000 tons in the preceding week.

During the first sixteen days of May the Office des Houillères Sinistrées received from the Ruhr 128,900 tons of coal, 150,800 tons of coke and 15,500 tons of lignite briquets. The O.R.C.A. received from the Ruhr in May 281,345 tons of coke, a daily average of a little less than 9,900 tons.

Output by the North and Pas-de-Calais collieries in April totaled 2,340,962 tons of coal (daily mean 93,638), 179,713 tons of coke and 158,529 tons of patent fuels. The figures for March were 2,446,444 tons of coal, 183,833 tons of coke and 156,541 tons of patent fuels.

French Market Suffers from Progressive Dullness

The French coal market has weakened in sympathy with the reduced consumption by industries. For household fuel, the request by consumers from retailers is unmportant; therefore orders from dealers to the collieries are smaller too. Screened bituminous grades are neglected; Belgium takes hardly any at all now, as the competition of German products is strong in the Ghent and Antwerp regions.

Belgian Situation Improves

The improvement in the Belgian market situation is steady but sure—not so much by reason of greater demand as of a reduction in optput. The exodus of miners to work in the fields is greater than usual this year owing to the decrease in miners' wages.

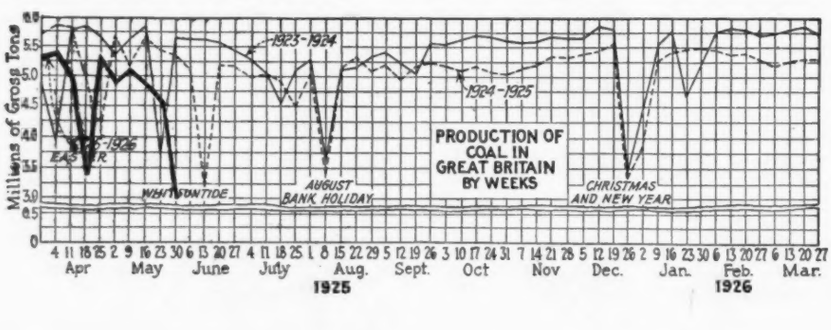
Trade Generally Inactive At Hampton Roads

Business at Hampton Roads last week was comparatively dull, except for considerable movement to Canada due to the strike in Nova Scotia mines. Bunkers held fairly firm, while other coastwise trade was not up to normal. Inland business was reported very dull.

Supplies at Tidewater were comparatively large, but little change in prices has taken place within the week. The trade in this territory generally was not active, and shippers were making concessions to move coal threatened with demurrage.

The Virginian Ry. having obtained its new coal rate to the West, enabling it to compete with the Norfolk & Western and Chesapeake & Ohio, is expected to strengthen prices at Hampton Roads materially. Hitherto the Virginian, because of differentials, has been compelled to move its coal to the East, and this has depressed the market to a great extent.

Shippers believe that with the Virginian moving coal to the West the price here will be strengthened, and that a consequent increase in movement will take place. The prospective lease of the Virginian by the Norfolk & Western, however, probably will result in stabilizing the situation.



Export Clearances, Week Ended June 20, 1925.

FROM HAMPTON ROADS

	Tons
For Italy:	
Ital. Str. Labor for Genoa	5,913
Ital. Str. Concordia, for Porto Ferrajo	9,533
Ital. Str. Valnoce, for Bagnoli	6,171
Ital. Str. Fiume, for Genoa	9,487
For British West Indies:	
Br. Str. Trevelyan, for Barbados	6,358
For Danish West Indies:	
Nor. Str. Bueland, for Curacao	5,126
For Canada:	
Ital. Str. Vallarsa, for Montreal	7,344
Br. Str. Elswick Grange, for Three Rivers	5,536
Ital. Str. San Pietro, for Montreal	7,293
For Brazil:	
Br. Str. Clarissa Radcliffe, for Rio de Janeiro	7,578
Br. Str. Peterton, for Rio de Janeiro	6,073
For Far East:	
Br. Str. Knight Companion, for Port Said	2,491
For Germany:	
C. S. Stra, Legie, for Bremen	1,148
For New Brunswick:	
Amer. Schr. Agua, for Campbellton	930
Br. Str. Lingan, for St. John	7,226
For Newfoundland:	
Dan. Str. Paris, for Cornerbrook	4,519
For Nova Scotia:	
Br. Str. Kamouraska, for Sydney	7,435

FROM PHILADELPHIA

For Brazil:	
Jap. Str. Scotland Maru, for Rio de Janeiro	——
For Cuba:	
Dan. Str. Stingade, for Havana	——

FROM BALTIMORE

For Chile:	
Br. Str. Finnie, for San Antonio (coke)	1,685

Hampton Roads Pier Situation

N. & W. Piers, Lamberts Pt.:	June 11	June 18
Cars on hand	1,684	1,498
Tons on hand	107,734	92,947
Tons dumped for week	148,949	169,755
Tonnage waiting	16,000	22,000
Virginian Piers, Sewalls Pt.:		
Cars on hand	1,339	1,332
Tons on hand	91,150	93,500
Tons dumped for week	97,075	83,460
Tonnage waiting	13,525	8,657
C. & O. Piers, Newport News:		
Cars on hand	3,552	3,108
Tons on hand	176,850	161,270
Tons dumped for week	107,000	184,235
Tonnage waiting	2,300	12,260

Pier and Bunker Prices, Gross Tons

PIERS

	June 13	June 20†
Pool 1, New York	$5.40@$5.75	$5.40@$5.75
Pool 9, New York	4.75@ 5.00	4.75@ 5.00
Pool 10, New York	4.50@ 4.65	4.50@ 4.65
Pool 11, New York	4.25@ 4.50	4.50@ 4.65
Pool 9, Philadelphia	4.65@ 4.90	4.65@ 4.90
Pool 10, Philadelphia	4.35@ 4.55	4.35@ 4.55
Pool 11, Philadelphia	4.25@ 4.30	4.25@ 4.30
Pool 1, Hamp. Roads	4.25	**4.20@ 4.35**
Pool 2, Hamp. Roads	4.10	4.10
Pools 5-6-7, Hamp. Rds.	4.10	*4.00*

BUNKERS

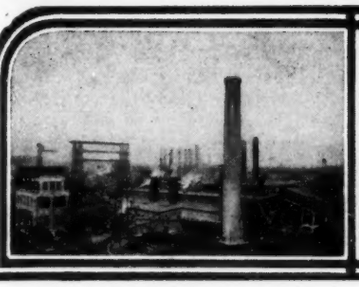
Pool 1, New York	$5.65@$6.00	$5.65@$6.00
Pool 9, New York	5.00@ 5.25	5.00@ 5.25
Pool 10, New York	4.75@ 4.90	4.75@ 4.90
Pool 11, New York	4.50@ 4.75	4.50@ 4.75
Pool 9, Philadelphia	4.80@ 5.05	4.80@ 5.05
Pool 10, Philadelphia	4.60@ 4.80	4.60@ 4.80
Pool 11, Philadelphia	4.45@ 4.65	4.45@ 4.65
Pool 1, Hamp. Roads	4.30	**4.35**
Pool 2, Hamp. Roads	4.15	**4.20**
Pools 5-6-7, Hamp. Rds.	4.10	4.10

Current Quotations British Coal f.o.b. Port, Gross Tons

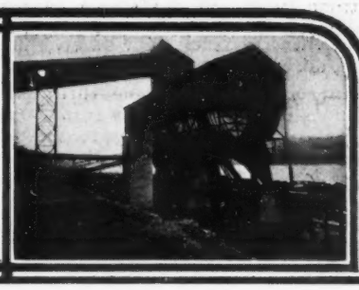
Quotations by Cable to *Coal Age*

Cardiff:	June 13	June 20†
Admiralty, large	25s.6d.@26s.	*25s.6d.*
Steam smalls	15s.	15s.
Newcastle:		
Best steams	16s.6d.@17s.	16s.9d.
Best gas	18s.3d.	18s.3d.
Best bunkers	16s.6d.	16s.6d.

† Advances over previous week shown in **heavy type**; declines in *italics*.



News Items From Field and Trade



ALABAMA

E. E. Echols has been reappointed associate mine inspector for a term of three years by Governor Brandon, and Robert Leath, of Jasper, has been appointed to succeed S. M. Thompson as an associate mine inspector in the organization of Chief Mine Inspector Charles H. Nesbitt.

The Barrett Co. is building a battery of 26 pitch coke ovens at its Fairfield works at a cost of about $40,000. The company has been making its pitch coke in some old beehive ovens of the Gulf States Steel Co. at Virginia Mines for some time and the new plant will enable it to abandon the use of these ovens and further concentrate its operations at Fairfield. This is the first plant of its kind erected in the South.

ARKANSAS

Because the company says it can no longer pay the wages of the 1924 agreement and operate its mines, the Fort Smith Spadra Coal & Mining Co. has withdrawn from the Southwestern Interstate Coal Operators Association and begun operations under the 1917 wage scale at its mines in the Spadra field. William Pendergrast, manager, said that 65 per cent of the coal mined during the last run at the Spadra field was non-union. All mines in the field either will have to close or operate on the old wage scale, he said.

COLORADO

Three miners were killed and two injured in an explosion at the Gordon mine of the Gordon Coal Co., six miles northwest of Walsenburg, on the night of June 19. The explosion was at the 6,000 ft. level. The bodies of the men were recovered.

ILLINOIS

Judge English, in the East St. Louis federal court, refused to confirm the sale of 60 acres of coal land owned by the Southern Gem Coal Corporation to the Pyramid Coal Co., of Marion, to which the property had been sold by the receivers, subject to approval of the court, for $5,500. He ordered a new sale. Confirmation of the sale was objected to by John D. Waterman, a banker of Rockford, who had no notice that the sale was to be made and who later offered $7,500 for the property.

The Willis Coal & Mining Co., owner of the Gulf mine at Sparta and a mine at Percy, went into voluntary bankruptcy June 1, in federal court at East St. Louis. C. H. Krause and Conrad Reeb, both of St. Louis, Mo., were appointed receivers. Since last November, when the Gulf mine closed down, the company has been trying to straighten out its financial affairs, but without success. The bankruptcy petition was filed in order to give more time to work out the financial plans of the company, and it is the belief that the mines may resume operations under the receivership before the end of the summer.

The Black Servant Coal Co., operating a large strip mine eight miles south of Elkville, is contemplating the installation of a stone crushing plant.

The Spring Creek mine, in the Springfield district has been reopened. The mine is capable of producing 2,000 tons of coal daily.

The Nason Power Co., of Nason, which was recently organized, has been granted a certificate by the Illinois Commerce Commission to serve the new city of Nason and surrounding territory with electric light and power. The Illinois Coal Corporation has contracted for power from the new plant, which was designed primarily to take care of the power requirements for the coal company's mine No. 10 at this point. This mine is rapidly getting into production and by early fall probably will be producing 5,000 tons per day.

Valier Mine No. 1, located in Franklin County, under the supervision of F. F. Green, superintendent, and J. R. Holt, mine manager, recently hoisted 126,202 tons in sixteen consecutive working days, a daily average of 7,887 tons.

INDIANA

Jeff D. Ladson, for eight years superintendent of Atlas No. 1 Mine, at Petersburg, resigned his position June 18 because of failing health. He will spend a three months vacation in the West and on his return will be connected with the executive force of the mine. Ladson is well known in southern Indiana, having sunk some of the biggest shafts in the state. He has been superintendent of the Atlas Mine ever since it was put down. Thomas Faulds, formerly of Jackson Hill Mine No. 2, at Clinton, has succeeded Ladson as general superintendent.

The Merzie Coal Corporation, of Indianapolis, has increased its capital stock from $50,000 to $100,000, all the increase being common stock.

A strike at the Glenco mine, near Terre Haute, in effect for several months, has been settled and the mine is preparing to resume operations.

Some interesting figures recently were issued by the Indiana Bituminous Coal Operators Association, depicting the situation of the Indiana mines for the first half of June. In all, there are 196 mines in the State of Indiana. Out of this total only 84 are working, leaving 112 idle. The percentage of running time of the total mines working is only 43 per cent, leaving 57 per cent of them idle. Looking at the question from the standpoint of daily capacity, the few mines working are producing on the basis of 52 per cent. In May the mines which actually loaded coal worked 54 per cent of potential time and were idle 46 per cent. Considering all the mines in the state, the working time for the month of May was 27 per cent.

IOWA

Clyde Martin, of Macon, Mo., representing a large Eastern syndicate is negotiating the merger of important coal properties in the vicinity of Des Moines, with a total estimated valuation of $8,000,000. It is expected that the consolidation will be consummated by July 15. The merged properties would have an annual output of 10,000,000 tons. It is believed that the merger would result in a big cut in operating costs, enabling the company to sell coal for much less than is now demanded for Iowa coal.

KANSAS

The Standard Coal Co. mine near Frontenac was reopened June 1, after having been idle more than three months. The mine is operated by Mike Simone, John Pierard and Jake Schenerr, all of Weir. It employs fifty men and now is averaging four days a week working time.

The Victor Coal Co., in the southeastern Kansas field, which has been on the unfair list of District 14, United Mine Workers, for several weeks, was restored to good standing June 4. Members of the union, working at the mine, who had been suspended because of owning an interest in the mine at the time it was placed on the unfair list, were reinstated.

A check for $9,912.87 was given the Italian Coal Co., of Frontenac, June 8, by the Patton Coal & Mining Co., in settlement of two claims by the Italian company. Of the total, $8,512.87 represented judgment on a district court verdict of June 21, 1924, affirmed by the state Supreme Court May 8, 1925. The remaining $1,400 was in settlement of a suit filed March 2, 1925. In both cases the plaintiff declared it had not been paid for coal it mined for the

Pattons, while the defendant accused the Italian company of using dynamite and delivering slack coal where lump was ordered.

Trial of a suit of some three hundred coal dealers of Kansas and Nebraska to recover approximately $200,000 from the railroads in alleged excessive freight rates began in Kansas City, Mo., June 24, before an examiner of the Interstate Commerce Commission. The suit is an outgrowth of the order, issued May 4 by the commission, reducing rates on Colorado and New Mexico coal to Kansas and Nebraska cities. This reduction ranged from 27c. a ton to Missouri River points, to more than $1 to points in the western part of the two states. Dealers are seeking a retroactive decision, which would refund to them the difference between the rates they paid over the last two years and the new rates.

The lower vein of Mayer Mine No. 6 which in the last fifteen years has been one of the best producing shafts in the vicinity of Mineral, in the southeastern Kansas field, has been worked out and the mine will be abandoned before July 1. At the peak of its production the mine employed 250 men. Coal was found at from 115 to 125 ft. Two veins remain to be worked, one 2 ft. thick at a depth of 70 ft., and another at a depth of 15 ft. Crosby & Reed, who have been operating the shaft several months, say that at the present cost of production in the Southwest, the 70 ft. vein cannot be mined profitably. With an improvement of marketing conditions, it is expected to work the top vein with a steam shovel.

KENTUCKY

Fred G. Hatton, president of Hatton, Brown & Co., Inc., Columbus (Ohio) wholesaler, and receiver of the Himler Coal Co., said that after an inspection of the property at Himlerville, he has made arrangements for the full operation of the mine during the summer. This was made possible by the receiver having landed a large lake contract, based on the rate at which the miners will work. Over 200 miners are employed and the daily output is 1,600 tons.

MONTANA

A crew of 100 men has started to dismantle the tipples and company buildings at both No. 1 and No. 2 mines, at Lehigh. The Montana Power Co. will tear down its power line and the Great Northern will take up its tracks from Windham to Lehigh, and what was once a thriving coal camp, employing several hundred miners, will be completely wrecked and abandoned.

The Northern Pacific Ry. began open pit operations at Colstrip, in Rosebud County, early in June. This unit is said to be the last word in the application of hydroelectric power to locomotives, shovels and all apparatus. Scheduled output is 2,000 tons daily. Government figures disclose veins from 25 to 30 ft. thick and about 30 ft. underground. The railroad's electric power is drawn from its Absaroka Mountain station. A 35-mile extension will carry the coal by rail to the main line of the Northern Pacific at Forsyth, where it will be distributed over its central and western divisions in conjunction with supplies from the company's Washington mines. Foley Brothers, Inc., of St. Paul, will work the new mines under a contract with the Northern Pacific. Commercial production has been resumed at Red Lodge.

Main Office, Stearns Coal & Lumber Co., Stearns, Ky.

Stearns lies on the divide between the Cumberland River and its South Fork near the headwaters of Laurel Creek which leading into Marsh Creek enters Cumberland River a few miles west of Jellico Creek.

NEW YORK

On July 1 the Empire Coal Mining Co., of Philadelphia, will close the office which it has maintained several years in Buffalo, in charge of K. P. Lewis, and concentrate its trade further East. The plan is to sell its own Clearfield coal, which does not go to Buffalo, and do less jobbing. Mr. Lewis will return to Philadelphia and remain with the company.

OHIO

Holding that picketing and interference by union miners at the two mines east of New Philadelphia belonging to the H. R. Brown & Son Coal Co. is a boycott and does not involve elements of a strike or trade dispute. Common pleas Judge C. A. Reid, Washington Court House, on June 10 granted an injunction against such practices applied for by the operators against union miners and Thomas J. Price of Midvale, sub-district president of the United Mine Workers. Judge Reid held that entrance to company grounds as well as persuasion is unlawful, even without force.

Fred Essex, of the Essex Coal Co., Columbus, reports that work has been started in Mine No. 7 of the company, in the Pomeroy field. Miners are now working under the 1917 scale, instead of on the co-operative basis, which had been in effect at this mine for some time. Mr. Essex reports about 90 men are employed.

Bids were received by the Columbus Board of Purchase June 17 for 17,000 tons of nut, pea and slack for the municipal light plant, 8,400 tons of the same kind of coal for the Scioto River pumping station and 4,000 tons for use at the garbage disposal plant. On West Virginia coal the Wm. J. Hamilton Coal Co., Columbus, was low with a bid of $1.09, with the J. Miller Coal Co., Columbus, second on West Virginia Coal at $1.10. The W. S. Harmon Coal Co., Columbus, was the only bidder on Ohio coal, with a price of $1.14 predominating.

The Red Seal Coal Co., which sells nothing but carload lots, recently opened a branch in Columbus, in the Comstock Building. R. C. Holland is local distributor. The company has large operations in Franklin County, Ill.; eastern Kentucky and southern Ohio.

PENNSYLVANIA

Downward revision of the present union wage scale and deflation of capacity are essential in any plan looking to stabilization of the bituminous coal industry, said C. E. Lesher, assistant to the president of the Pittsburgh Coal Co., in an address June 16 at a meeting of the mining section of the Engineers' Society of Western Pennsylvania, in the William Penn Hotel, Pittsburgh. In discussing the pending crisis in the union fields, owing to the inability of union operators to compete with the non-union areas now operated at a substantially lower cost, Mr. Lesher declared the "union fields as entities are being eliminated. The present depression in the coal industry is costing the Pittsburgh district $800,000 a week in mine payrolls alone," he said, adding that mine supplies not purchased and railroad freights not earned represent another large sum that should now be contributing to the community's prosperity.

The State Department of Mines has announced examinations for bituminous mine inspectors at Pittsburgh June 30 and July 1 and 2.

In a petition filed in federal court at Scranton recently the Mt. Jessup Coal Co. asks to be adjudged bankrupt. It places its liabilities at more than $356,000 and assets at $115,000, the United States Government being listed as one of the creditors. The coal company owes $142,000 to the government in taxes and $12,000 to the State of Pennsylvania. The assets represent $3,000 in the bank and the plant and coal

properties of the concern. Judge Johnson of federal court will name a receiver.

Work on the completion of the $1,000,000 steel breaker of the Colonial Colliery Co. at the Greenough mine, at Marion Heights, is being pushed. It is hoped to have the plant in operation before winter. In addition to the breaker all of the other buildings about the plant, including engine houses, storage, etc., are to be of steel construction.

John S. Miller, 72, of Highland, claims to have the longest continuous service record of any mine worker in this part of the state. He had worked in and about the mines for 65 years and is still active every day as assistant to the general foreman at No. 2 mine of the Jeddo-Highland Coal Co. Mr. Miller started work in the breaker when eight years of age.

A change from the dry to the wet method of preparing anthracite is included in the revolutionary program of repairs and improvements being carried on at the No. 20 Maxwell mine of the Lehigh & Wilkes-Barre Coal Co., at Ashley. Operations are going on as usual while the work is being done.

Joseph Jermyn, independent anthracite operator of Scranton, recently announced that he was seriously considering the idea of running for Treasurer of Lackawanna County and that if elected he would take no salary but instead devote the money to the aid of needy families.

At a recent meeting of delegates representing 48 counties in Pennsylvania at State College, J. C. Cosgrove, well know Johnstown coal operator, was named as a member of the board of trustees.

VIRGINIA

General offices of the Big Vein Anthracite Collieries, Inc., were moved June 15 from Washington, D. C., to the company's mines at McCoy, Va. D. A. Patterson, who was chief engineer of the company, is in full charge of all matters at the mine and will be designated hereafter as chief engineer and general manager.

WEST VIRGINIA

The great depreciation in coal values was brought out strongly in the Winding Gulf district recently, when the property of the Beckley-Pocahontas Coal Co. at Besoco, Raleigh County, was sold under a receivership sale. Bidders were few and the property was knocked down to attorney Ashton File for $35,000 cash, just enough to pay back royalty and taxes due. The property comprised a good sized lease of smokeless coal land on the waters of Stone Coal, and was equipped and shipped at the rate of 15,000 tons of coal per month. This same property was sold in 1920 to interests in Huntington for $750,000.

A fall of slate June 18 at the Eccles mine of the Crab Orchard Improvement Co., of Raleigh County, in the New River District, controlled by the Wentz interests, of Philadelphia, narrowly escaped proving fatal to J. P. Horn, general superintendent of all the Wentz properties in Fayette and Raleigh counties. Three men were killed by the accident and two seriously injured. Mr. Horn was standing between two of the men who were killed.

When the Bank of Benwood closed its doors in the Panhandle coal region June 10, because of heavy irregularities of bank officials, it was found that about $10,000 of the fund for widows and orphans of the 119 miners killed in the Benwood mine of the Wheeling Steel Corporation more than a year ago, was on deposit in the institution, and as it was pay day for the beneficiaries when the bank closed, they will get nothing.

Announcement was made in Fairmont June 20 that the inquest will be resumed in connection with the Barrackville mine explosion in Fairmont July 10. Robert M. Lambie, of Charleston, chief of the State Department of Mines, will be at the inquest, it is announced.

The Rev. T. Vincent Tygart, a preacher-miner, formerly Blue Label representative and co-operative merchant, was acquitted in the Harrison County criminal court in Clarkesburg, June 18, on a charge of being accessory before the fact in inciting several union miners to beat up two non-union coal miners at the Katherine mine of the Sitnek Coal Mining Co. at Lumberport recently. Judge John C. Southern directed the jury to return a verdict of not guilty, holding that the evidence did not show that the defendant committed the offence with which he was charged. Several union miners were convicted and sent to the penitentiary for the offense.

The Island Creek Coal Co. has declared an extra dividend of $1, besides the regular quarterly dividend of $2 on the common stock, payable July 1 to stockholders of record on June 25.

A mine fire that broke out in Dora mine of the Thomas Love Coal Co., along the Wyatt-Bingamon branch of the Western Maryland Ry., June 17, was sealed late last week in order to prevent the fire from spreading. The fire was discovered in the early morning and it is believed that an electric wire coming in contact with the coal after a roof fall probably caused the fire. State mining inspectors and the rescue team of the Bethlehem Mines Corporation, under the direction of J. V. Berry, of Johnstown, Pa., who happened to be at Barrackville, fought the fire, which burned briskly. Effort was made to flood the mine by pumping water out of Bingamon Creek nearby, but the mine was finally sealed.

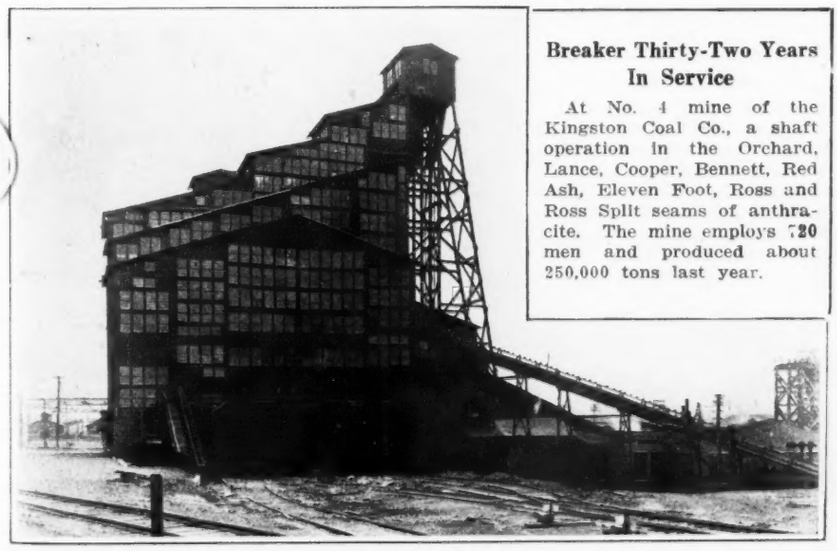
Receivers of the Jewett, Bigelow & Brooks Coal Co., of Cincinnati, offered at public sale on the Harrison County Court House steps at Clarksburg, June 13, the property of the Seminole Gas Coal Co., at Haywood Junction. Due to no bids being offered the property was withdrawn. It is reported that the coal property will be sold at private sale later.

Lake coal shipments from mines along the Monongah Division, B. & O., in northern West Virginia were delayed early last week due to an embargo being placed on Lorain docks owing to coal unloading machinery being broken down on that pier. Because it will require two or three weeks to make the necessary repairs to the unloading device, the B. & O. lifted the embargo June 17 and started to move coal to the Port Huron (Mich.) pier instead of Lorain.

Three teams, one composed of men, another of boys and a third of girls, were chosen by the Bethlehem Mines Corporation elimination safety meeting at mine No. 41, near Barrackville, June 12, to represent the Marion Division at the general safety gathering to be held in Harrisburg, Pa., June 27.

WYOMING

A cave-in occurred June 5 in the Blairtown mine, the property of the Lion Coal Co. No one was injured as the 120 miners at work were employed in pulling mine pillars in a part of the mine that was to be abandoned because it had been worked out. The Blairtown mine is located near Rock Springs and is one of the older mines of the district.



Breaker Thirty-Two Years In Service

At No. 4 mine of the Kingston Coal Co., a shaft operation in the Orchard, Lance, Cooper, Bennett, Red Ash, Eleven Foot, Ross and Ross Split seams of anthracite. The mine employs 720 men and produced about 250,000 tons last year.

CANADA

After an almost unanimous vote on June 5 to quit work until the company reopened negotiations, employees of the Western Fuel Corporation of Canada, Nanaimo, B. C., named committees to interview Canadian Collieries employees at Cumberland, Ladysmith and Lantzville, who recently accepted a wage cut, to find out what the new conditions were and whether the men were prepared to join the Western Fuel employees in a strike, with a view to regaining the old wage scale. As a result of the reports, the Western Fuel employees offered to accept a reduction of 20c. to miners, 10c. to drivers, but no reduction to men receiving less than $4 per day. The company would consider nothing but a straight cut of 60c. per day to all employees. Another meeting was held June 11, when by a vote of 359 to 357 the company's proposal was declined. Of nearly 1,400 employees only 716 voted. Later the same day the miners voted, 257 to 147, to accept the company's terms and to leave the other classes of labor to make their own terms with the company.

George P. Graham, Minister of Railways and Canals, in the course of a debate in the Dominion House of Commons this week, on the export of power from Canada, said: "I am in hopes, and the Government is in hopes, that before long we may be able to evolve a scheme which will relieve the situation to a large extent so far as anthracite coal is concerned, by the use of our own coal both in the east and west for the manufacture of coke. If that can be done, we shall be in a different position from what we are in today."

The strike of 1,200 coal miners employed by the Western Fuel Corporation at their mines on Vancouver Island has been settled and the mines were in full operation June 15 after a week's shutdown. Following the example of the underground men in voting to accept the company's announced reduction of 60c. a day in the bonus of 90c. which the men had been receiving, the surface men announce they have voted unanimously to return to work at the reduced rate.

Miners in the Wayne and Drumheller fields accepted a reduction of 15 per cent from the former union rate in a contract signed June 18 between operators and representatives of District 18, United Mine Workers. The employees won a concession for which they have been trying three or four years when the operators agreed to give preference of employment to men who leave during the summer slack season, and come back later.

Govermental assistance for domestic production of coke from coal mined in Canada is to be provided in a bill prepared by Minister of the Interior Stewart. Not exceeding 3 per cent of the cost of the plants would be advanced by the government.

On June 12 the Canadian National Railways issued instructions to transmission and traffic offices in the Western region to accept 25,000 tons of Alberta coal for shipment to points in southwestern Ontario at a test rate of $7 per ton. Representations recently made by the coal operators of Alberta supported by the Provincial government to Sir Henry Thornton, president of the C. N. R., have resulted in the present test, the result of which will be accurately calculated in order to determine the actual cost to the railway.

Traffic

North Carolina Inland Cities To Get Rate Cut

A readjustment of rates on coal from Virginia, West Virginia and Tennessee mines to points in North Carolina has been negotiated between carriers serving the latter state and the Corporation Commission as a result of a complaint of the Corporation Commission before the Interstate Commerce Commission. The reductions agreed upon are approximately 17c. per ton from the Tennessee mines on the Southern Ry. and from the Clinchfield mines, and 20c. per ton from the Pocahontas district.

This readjustment takes the place of one proposed by the carriers which would have raised the rates to ports without reducing the rates to inland cities.

The reduced rates agreed upon are expected to become effective within sixty days.

C. & O. Hits "No Bills"

Under a rule recently promulgated by the Chesapeake & Ohio Ry., operators who persist in the practice of loading railroad empties with coal without having any orders for such coal are to be penalized by having the cars so loaded counted against the following day's car supply. Although in the last few months the practice of forwarding "no bills" to scale points has been to a great extent broken up as a result of action taken by various coal associations, this new ruling will have the effect of eliminating a practice which may still be continued by certain individuals. The action by the C. & O. was taken to prevent any possible shortage of equipment, which might become tied up with unsold coal.

Defer Lignite Rate Hearing

The Interstate Commerce Commission has agreed to a postponement of the hearing set for July 8 at Bismarck, before Examiner Tewell, on the rates on lignite shipments from North Dakota to neighboring states. Postponement was asked by the Board of Railroad Commissioners on the ground that the board was not yet prepared to present its case.

The hearing will be held beginning Tuesday, July 21, in the office of the Board. Rate experts and lignite miners will be present to give their arguments and plans will be considered for presenting the case to the Interstate Commerce Commission.

A hearing on complaint filed with the Interstate Commerce Commission attacking freight rates on fine coal from the head of the lakes to Grand Forks, N. D., will be held in the Federal Building at Grand Forks on July 1, according to T. A. Durrant, traffic commissioner of the Grand Forks Commercial Club.

Examiner Jewell, of the commission, will conduct the hearing with the Great Northern and Northern Pacific railroads represented by their officials.

Opposes Larger Differentials To Alabama Coal

In recommending to the Interstate Commerce Commission that no greater freight rate differentials be allowed Alabama coal moving to Mississippi Valley points, Examiner J. Edgar Smith declares that Alabama coal as compared with Illinois and Kentucky coal now has an equality in rates, or an advantage in rates throughout the territory. He sees no justification for increasing the differentials against Illinois and Kentucky.

Coke Rates Cut in New York

The Buffalo, Rochester & Pittsburgh R.R. has filed a schedule on coke, coke breeze, coke dust and coke screenings, carload minimum weight when in open cars 50,000 lb., except when car is loaded to fill visible or cubical capacity actual weight will apply but not less than 35,000 lb. and in box or stock cars 40,000 lb., from Buffalo to Orchard Park, 80c.; reduction 46c. per net ton; effective July 14, 1925.

The New York Central (East) has filed a new schedule on coke, coke breeze, coke dust and coke screenings with similar loading specifications, from Harriet to New York Central (West) stations: Athol Springs, Lake View and Derby, $1.13; Angola, Farnham, Irving, Silver Creek and Dunkirk, $1.26; Van Buren, Brocton, Portland and Westfield, $1.39; Forsyth, Ripley and State Line, $1.51 per net ton; reductions, effective July 21, 1925.

The Delaware, Lackawanna & Western R.R. has filed with the New York Public Service Commission a new schedule on coal screenings (mixture of pea and smaller sizes of anthracite), carloads, minimum weight marked capacity of car (actual weight if car is loaded full and weight is less than marked capacity) from Corning to Black Rock, Buffalo, and East Buffalo, $1.64; reduction $2.26 per gross ton; effective July 17.

Kansas Gets Equalized Rate

An equalization of freight rates on Lexington (Mo.) coal between Kansas City, Kan., and Kansas City, Mo., has been made by the Missouri Pacific R.R., which has reduced its handling charge on Lexington coal shipped to Kansas City, Kan., 17c. a ton. Announcement of the reduction was made June 12. Under the new rate the Missouri Pacific makes the same handling charge for Lexington coal destined for the two cities. It represents a saving of from $6 to $8.50 per car on coal shipped to the Kansas side. Heretofore dealers on the Missouri side have been able to truck Lexington coal from their yards to the Kansas side and there undersell their Kansas competitors.

New Companies

The Excelsior Elkhorn Coal Co., Pikeville, Ky., capital $50,000, has been chartered by F. G. Rockwell, F. L. Rice and S. H. Fields.

The Bennett-Campbell Coal Co. was incorporated in Winston Salem, N. C., about the middle of May, with a capital stock of $50,000, by C. M. Bennett, C. M. Campbell, 156 West End Blvd., and others.

The Greenview Mining Co., Greenview, Ill., has been organized with a capital of $25,000, to mine, buy, prepare for market, sell and ship coal and other minerals. The incorporators are George W. Hatch, Claude W. Hatch and Forrest L. Hatch.

The Petroleum Coal & Iron Co. has been incorporated in Montgomery, Ala., with a capital of $100,000. Craig F. Cullinan is president and C. T. Carnes is secretary.

The Clark Coal & Mining Co. has been organized in Joplin, Mo. R. M. Clark is president and B. B. Clark is secretary.

British Colonial Coal Mines of Canada, Ltd., has been incorporated with a capital of $5,000,000 with head office at Toronto. The provisional directors are William J. O'Grady, John F. Lennox, Michael J. O'Connor, Arthur J. Trebilcock and others.

Trade Literature

Type PM Portable Arc Welding Outfit for Mine Service. Electric Railway Improvement Co., Cleveland, Ohio. Circular No. 14. Pp. 9; 6 x 9 in.; illustrated. Describes and illustrates the welding of rail bonds, motor end castings and mine locomotive frames.

EC&M Type ZO Starting Switches for Small A.C. Motors. Electric Controller & Mfg. Co., Cleveland, Ohio. Bulletin 1048. Pp. 8; 8 x 10½ in.; illustrated. Describes a new push-button operated oil switch for starting squirrel-cage motors and also single-phase motors.

Report of Evaporative Tests on Boiler No. 1, Power House No. 1, River Rouge Plant of the Ford Motor Co. Combustion Engineering Corp., New York City. Pp. 23; 8½ x 11 in.; illustrated.

Ash and Soot Disposal at Milwaukee Sewerage Plant. Conveyors Corporation of America, Chicago, Ill. Pp. 16; 8½ x 10½ in.; illustrated. Describes in detail the steam jet conveyor used in handling both soot and ashes.

Automatic Arc Welding. General Electric Co., Schenectady, N. Y. Bulletin No. 48937.1. Pp. 20; 8 x 10½ in.; illustrated. Describes the apparatus, applications and generating equipment.

The Dodge Manufacturing Corp., Mishawaka, Ind., recently issued an elaborate book visualizing the engineering, foundry and machine-shop facilities of that company.

Walter A. Zelnicker Supply Co., St. Louis, Mo., recently issued the following bulletins: No. 332, descriptive of **locomotive cranes**; No. 333, **rails**; No. 334, **sheet steel piling.**

Coming Meetings

Atlantic States Shippers Advisory Board. Seventh regular meeting at Atlantic City, N. J. July 8-9. General secretary, P. W. Moore, 30 Vesey St., New York City.

American Institute of Mining and Metallurgical Engineers. 132d meeting, at Salt Lake City, Utah, Aug. 31 to Sept. 3. Secretary, F. F. Sharpless, 29 West 39th St., New York City.

National Safety Council. Annual meeting Sept. 28 to Oct. 2, at Cleveland, Ohio. Managing Director, W. H. Cameron, 168 No. Michigan Ave., Chicago, Ill.

Tenth Exposition of Chemical Industries, Sept. 28 to Oct. 3, at Grand Central Palace, New York City.

Canadian Institute of Mining and Metallurgy. Annual western meeting Nov. 3-5, Winnipeg, Manitoba, Can. Secretary, George C. Mackenzie, Drummond Bldg., Montreal, Que., Can.

Fourth National Exposition of Power and Mechanical Engineering, Nov. 30 to Dec. 5, at Grand Central Palace, New York City.

Coal Mining Institute of America. Annual meeting, Dec. 9-11, Pittsburgh, Pa. **Secretary, H. D. Mason, Jr., P. O. Box 504, Ebensburg, Pa.**

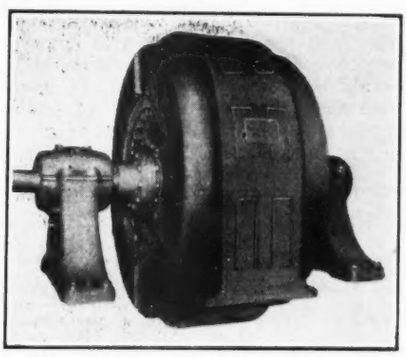
New Equipment

Two-Speed Synchronous Motor for Fans

A salient-pole, synchronous motor which can be run at either of two speeds without changing the frequency of the power supply is now being marketed by the General Electric Co. One of these machines has already been built, rated 5,000/2,500 hp., 600/300 r.p.m., for operation at unity power factor. An application of such a motor would be advantageous for mine ventilation.

The revolving poles of the two-speed motor are fitted with a special shoe of such form that each two adjacent poles can be excited with the same polarity. Thus the motor can be connected for either normal or one-half the normal number of poles by throwing a pole-changing switch for the stator winding and a reversing switch for the field winding. Operated as a generator, this same arrangement makes it possible to obtain two frequencies at the same speed or the same frequency at two different speeds.

In mine fan installations, where the full capacity of the fan is not required at times, and where a speed ratio of two-to-one is satisfactory, the two-speed synchronous motor has been proposed.

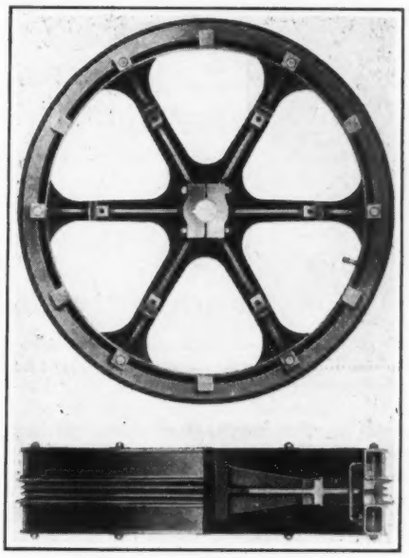


Saves Power by Two Methods

Large savings could be made at many mine fan operations by installing a synchronous motor suitable for operating at two speeds. Such an arrangement would be efficient because of the power-factor correction obtained and the reduced power requirements at slow speed.

Water Cools Brake Drum

The stresses imposed upon inclined-plane machines used in lowering mine cars down steep hillsides are severe. This also makes the duty of the brakes severe in like proportion. In order to overcome the heating distortion and sometimes the breakage of wheels of this kind the Broderick & Bascom Rope Co., of St. Louis, Mo., has designed the type of combined brake and sheave wheel shown in the accompanying illustration. This consists of three parts, the wheel proper and two hollow brakeways or drums bolted to it. In general appearance this wheel strongly resembles the ordinary rope sheave of the inclined-plane machine. In detail, however, it is radically different.



Top View and Half-Section

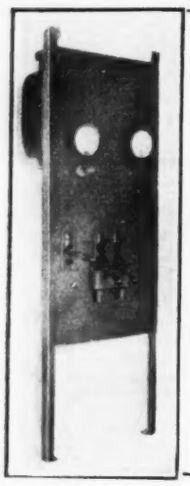
The hollow brake drums, bolted to each side of the sheave proper, are filled half full of water which, by the centrifugal action of the wheel, flies to the outside, effectively cooling the brakeway and preventing distortional stresses.

Each of the two brakeways or drums is cast as a hollow annular ring. Into this hollow cross-section water is poured until the ring is approximately half full. Suitable arrangements are, of course, made for draining both rings during cold weather. In operation, the centrifugal action of the wheel carries the water to the outer side of the hollow drum, so that the entire inner surface of the brake path is water-cooled. The water thus absorbs the heat generated by the friction of the brake and prevents distortion and possible rupture of the cast brakeway. Wheels of this kind which have been given a thorough tryout in actual operation have afforded entire satisfaction.

'Dead Front' Pump Controller Protects Operator

In time of unusual emergency men are liable to become excited and fail to take the simplest precautions for their own protection. The "dead front" fire-pump controllers recently introduced by the Westinghouse Electric & Manufacturing Co. are designed especially to protect the attendant. They are manually operated and are intended for use with squirrel-cage and wound-rotor motors that drive fire pumps supplying water to automatic sprinkler systems and other private fire protective devices such as are common in anthracite breakers. The Underwriters' Laboratories have approved the design which conforms with the specifications of the National Board of Fire Underwriters.

A double-throw oil circuit breaker eliminates the necessity of placing a knife-switch, or other current-carrying parts, on the panel front. In this way



It's Safe

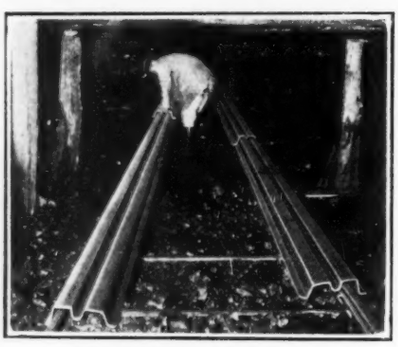
All parts on the front of this panel are dead and thus it is impossible for an excited man to get a shock.

the dead front design simplifies control and makes it impossible for the operator to come into contact with live parts. The oil circuit breaker also serves as the means for disconnecting and stopping the motor, giving adequate interrupting capacity under the most severe conditions.

For squirrel-cage motors, the controller is made up of a sheet steel panel on which is mounted an oil circuit breaker for connection to either of two sources of power supply, an inclosed auto-starter with non-corrodible fittings providing reduced voltage for starting, and an ammeter and voltmeter. A pilot lamp also is provided that burns whenever power is available. All operating parts are mounted in the rear of the panel, and are completely inclosed. For wound-rotor motors the panels are the same, except for a cam-operated controller with suitable starting resistor which replaces the auto-starter of the squirrel-cage motor panels.

Makes Track Extension Easy

Many have been the schemes devised for quickly extending the track to an ever retreating coal face. The jumper rail is probably the best known and most common device of this kind. This, however, possesses the obvious shortcoming that it frequently causes the cars to leave the track. Inasmuch as it is employed exclusively at the room faces the total amount of difficulty from this source experienced by the mine as a whole is in direct proportion to the number of faces worked.



Extension Rail in Use

This shows a pair of these rails being put in place as jumpers at the face of a room. The swinging hand-hold at the end of the rail serves not only as a means for handling but also as a car stop. The length of the rails is such that when they have been drawn forward to their limit a full length of regular track rail may be put down in their place.

To overcome this difficulty the Midland Steel Products Co., of Cleveland, Ohio, is introducing the Tompkins extension rail shown in the accompanying illustration. As may be seen, this is a piece of sheet steel rolled to such a cross section that it may be laid over the ends of either steel or wood rails and can be moved forward readily as necessity or convenience may require. No guide spikes or holding-down devices are necessary and these rails are self-gaging. A swinging handhold at the forward end serves a double purpose in that it may be used in moving the extension rails forward and also acts as a stop for the car wheels preventing the car from running off the end.

EXTENDS FULL RAIL LENGTH

These rails are made 16 ft. long, 10½ in. wide and 2⅝ in. high. They have no tendency to turn or tilt under the weight of the car and, being wide, they do not sink into the bottom. They can be readily moved forward by one man and regular room track laid behind them. This track can be extended a full rail length at a time which saves much inconvenience and expense.

These rails are so light that they can easily be handled and moved by one man. As they are made from comparatively thin plate it is not difficult to push the empty car onto them as well as to push or pull the load back onto the regular track. Derailments at the face are few where this device is used and its ease of application and general flexibility save much of the miners time for the loading of coal thus increasing the efficiency of the entire mine.

Industrial Notes

The Timken Roller Bearing Co., of Canton, Ohio, announces the retirement of Herman Ely, vice-president and treasurer, from active connection with the company. Mr. Ely became associated with the Timken company in 1909 as secretary and in 1916 was also appointed treasurer. He became vice-president and treasurer in 1920. The board of directors of the Timken company, following Mr. Ely's retirement, consists of H. H. Timken, W. R. Timken, J. G. Obermier, M. T. Lothrop and J. F. Strough, with officers as follows: H. H. Timken, president; W. R. Timken, J. G. Obermier, M. T. Lothrop and H. J. Porter, vice-presidents; J. F. Strough, secretary and treasurer, and W. A. Brooks, assistant secretary. H. J. Porter, who has been general sales manager, is advanced to vice-president in charge of sales. L. M. Klinedinst, heretofore assistant to Mr. Porter, becomes general sales manager of the industrial division.

The Joy Machine Co., Franklin, Pa., manufacturers of the Joy loading machine, elected the following officers at a recent meeting: President, John A. Donaldson; Vice-President, Frank H. Rea; Secretary, J. D. Berryman; Treasurer, R. T. Palmer; Directors, John A. Donaldson, Frank H. Rea, J. D. Berryman, William A. Rockenfield, H. W. Breckenridge and David Ingle; Executive Committee, William A. Rockenfield (chairman), Frank H. Rea and J. D. Berryman; Manager, R. T. Palmer; Consulting Engineer, Walter M. Dake; Consulting Operating Expert, J. M. Armstrong. John A. Donaldson formerly was vice-president of the Pittsburgh Coal Co. J. D. A. Morrow has been appointed in charge of Western sales, with headquarters at Evansville, Ind.

Obituary

David William Ross, 55, president of the United Collieries Co., formerly vice-president and purchasing agent of the Interborough Rapid Transit Co., New York City, one-time purchasing agent of the Isthmian Canal Commission, died June 10 in New York after a week's illness. Mr. Ross entered the service of the Illinois Central Ry. at the age of 19, remaining there for 17 years. When Theodore P. Shonts became president of the Interborough he invited Mr. Ross to join him.

Association Activities

The Retail Coal Dealers' Association of Texas held its 20th annual convention at Houston June 9 and 10. A number of interesting papers were read which provoked spirited discussion, despite a rather small attendance. The following officers were elected: William N. Martin, Vernon, president; Hugh Wallace, Fort Worth, first vice-president; Tilman Bibb, Fort Worth, second vice-president; Clarence R. Goldmann, Dallas, secretary-treasurer; H. S. Trewitt, A. T. Jackowitz, Elijah Coles, Mack B. Green and Lee M. Pool in addition to the officers constitute the executive committee. The secretary was instructed to obtain a charter for the associaion. The next convention will be held at Dallas.

The Kentucky Retail Coal Dealers' Association recently met at Lexington, Ky., elected officers and laid out a campaign for a membership drive, the organization not having enough members to be of much value at this time. Officers elected were: T. W. Spinks, of Covington, president; Russel Des Cognets, Lexington, vice-president; R. A. Watson, Louisville, treasurer, and J. Crow Taylor, Louisville, secretary. Directors are: Lee Smock, of Harrodsburg; L. P. Young, Louisville; Frank Pelois, of Bellevue; J. R. Poindexter, Jr., of Cynthiana; Edwin C. Eggert, of Bowling Green, and R. L. Dudley, of Flemingsburg.

Publications Received

A Critical Study of the Burrell Indicator for Combustible Gases in Air, by Lowell H. Milligan, Bureau of Mines, Washington, D. C. Technical paper 357. Pp. 40; 6x9 in.; illustrated. Describes the principle and operation of the Burrell methane indicator, gives a few typical results representing numerous actual mine tests and discusses possible sources of error and the effect errors may have on accuracy of determinations. The use of the indicator for other combustible gases is described and differences pointed out.

Anthracite, by John K. Mumford. Pp. 150; 5 x 7½ in. Price $1. Industries Publishing Co., 80 Lafayette St., New York City. Traces the history of heat and its making, the discovery of coal in Pennsylvania and the development and location of anthracite, beginnings of the coal roads, the long drawn-out battle between mine owner and mine worker, the litigation leading to the separation of mining and railroad companies and the present status of the industry.

American Buyers' Guide. Pp. 296; 6 x 9 in. Price, $2. American Chamber of Commerce in Germany, Berlin, Germany. A classified directory and handbook for American importers and exporters.

Report for Year Ended Feb. 11, 1925, Engineering Foundation, Engineering Societies Building, New York City. Pp. 31; 7 x 10 in.

Statistics of Railways in the United States for the Year Ended Dec. 31, 1923. Pp. 100; 9 x 11 in.; tables. Included are statistics based on the monthly and quarterly reports of railways for the year 1924, as well as selected data relating to other common carriers subject to the Interstate Commerce Act for the years 1923 and 1924.

Mechanical Underground Loading in Metal Mines, by Charles E. Van Barneveld. Published as co-operative work between the U. S. Bureau of Mines, Mississippi Valley Station, and the Missouri School of Mines and Metallurgy, Rolla, Mo. Vol. VII, No. 3. Pp. 639; 6 x 9 in.; illustrated.

Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

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Does It Pay To Spend Money?

CONVERTING eleven big Illinois mines from steam to electric operation *was* expensive. But the Old Ben Coal Corporation had both foresight and confidence enough in itself and the future of coal to carry out one of the most elaborate electrifications that has ever been made in the industry. The story of this immense enterprise—a sign of the times in today's advance by the coal industry—appears in next week's issue of *Coal Age*.

How much does the expenditure save? The Old Ben mines have not yet had enough full-time operation over a long period to determine this. But the company *does* know that it saved $50,000 last winter at one mine, and that its idle-day costs are much less than they once were. There is a feeling of great confidence in the electrification on the part of the men who spent the money. What better sign is there that the coal industry is learning to spend judiciously and largely?

But after money is spent for cost-reducing equipment *do coal men know their costs?* W. L. Affelder lays down in detail in next week's magazine a scheme for checking every item in mine charges and a scheme of charting this check so that leaks show up. This is a helpful story.

HIGH UNION WAGES have certainly upset the trade balance between union and non-union fields. Everybody knows this but it takes that skilled statistician and keen observer, C. E. Lesher, of the Pittsburgh Coal Co., to paint us the true picture. He does it in the forthcoming issue. He holds that union wages *must* come down and that John Lewis is wrong in holding that non-union wages would drop with every union cut. Non-union pay is at rock bottom right now, he declares.

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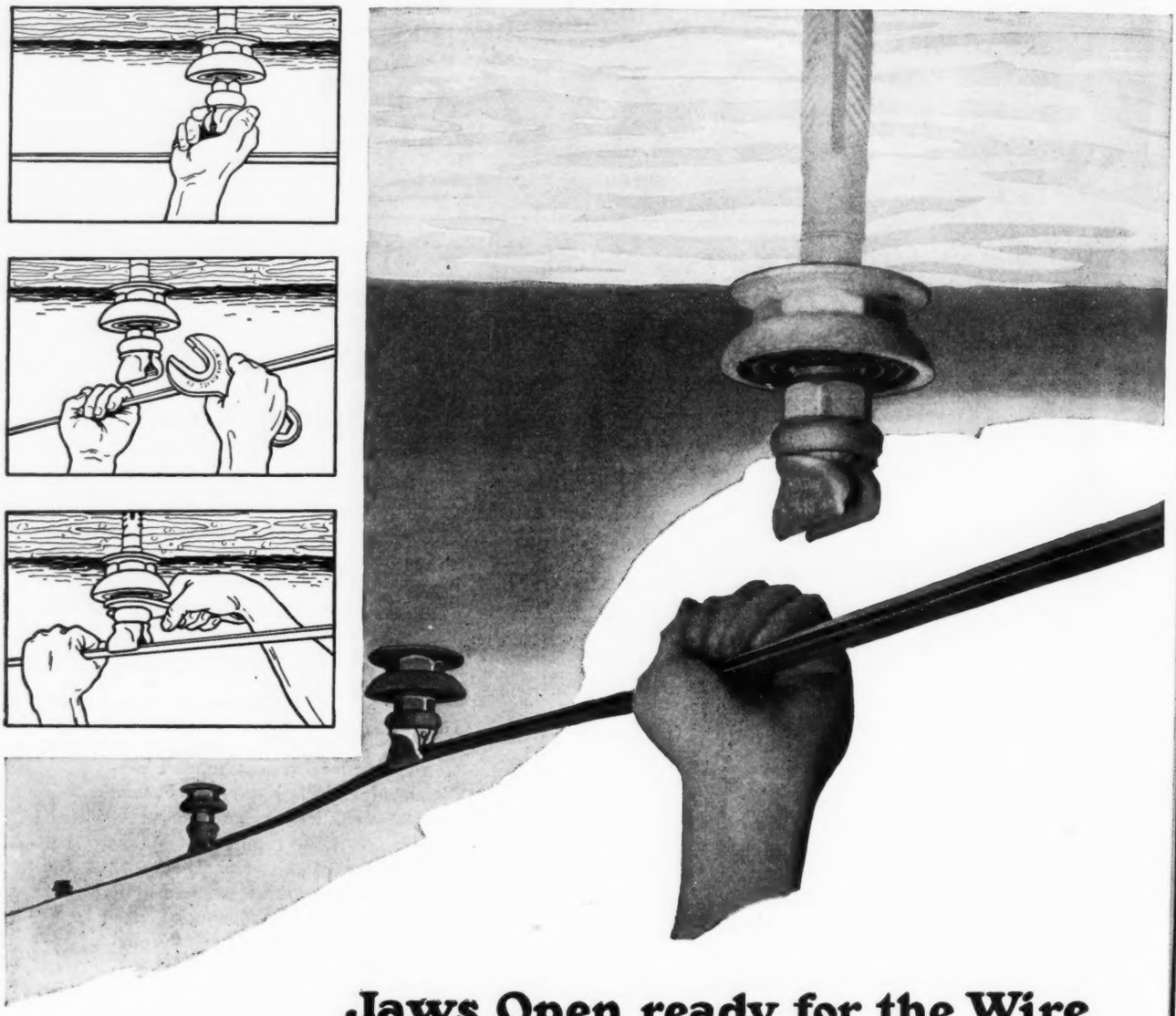
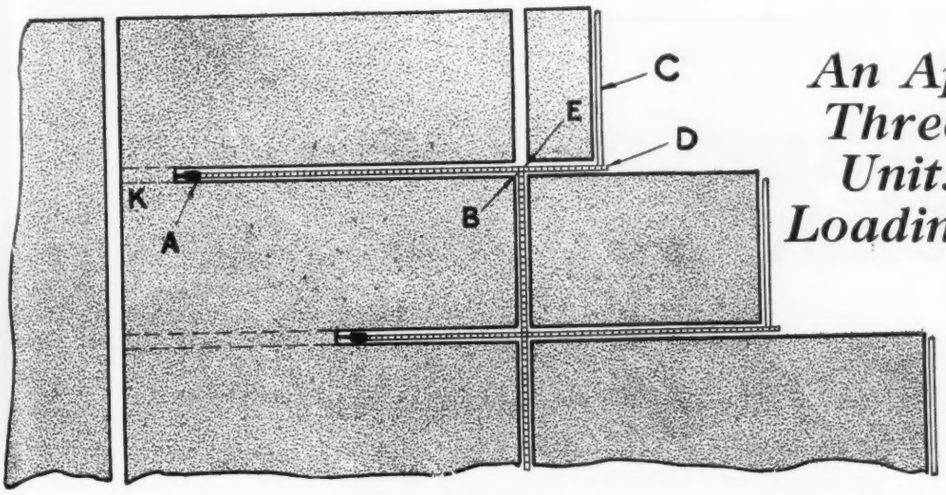


Jaws Open ready for the Wire

The O-B New Bulldog and Alining Bulldog both have the exclusive O-B feature of jaws that are held open by the nut. This eliminates the usual bothersome operation of holding the jaws open while lifting the trolley wire into place to be clamped. Turn clamp onto hanger stud—lift wire into position—tighten the nut—that's all there is to installing these Bulldogs.

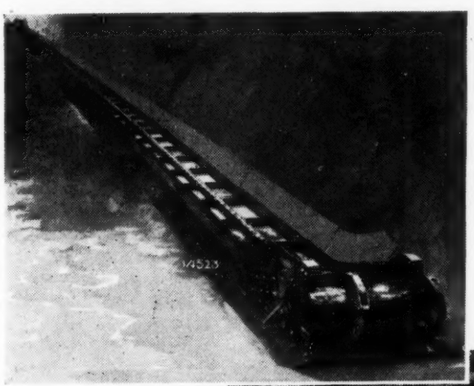
The Ohio Brass Company
Mansfield, Ohio
In Canada–Dominion Insulator & Mfg. Co., Limited–Niagara Falls, Ont.

O-B TROLLEY MATERIAL



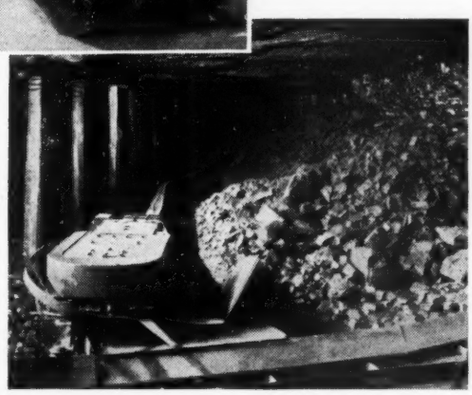
An Application of Three Important Units of Jeffrey Loading Machinery

43-A—SHORTWALOADER (Patents Pending)
A combination cutting and loading machine



47-A—Sectional Conveyor

(Patents Pending)



44-A—Conveyor-Loader for long faces

(Patents Pending)

AT "A"—A SHORTWALOADER driving an entry, coal is delivered from machine to point B by Sectional Conveyor, a conveyor on cross entry carrying coal to cars, the same conveyor gathering coal from several other conveyors.

At "C"—A Conveyor-Loader which delivers the coal into a Sectional Conveyor at "D" this conveyor dumping the coal into Sectional Conveyor at point "E."

As Conveyor-Loader retreats the conveyor between "E" and "D" is shortened. The sections that are taken off at "D" are put on the conveyor and pulled out to "E" transferred to the other Sectional Conveyor and added at "A" as the SHORTWALOADER is advanced.

Further information concerning the latest and most important contribution made to the coal mining industry will be gladly sent you.

THE JEFFREY MFG. COMPANY
912-99 N. Fourth St., Columbus, Ohio

New York	Scranton, Pa.	Denver
Philadelphia	Charleston, W. Va.	Salt Lake City
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JEFFREY
COAL MINE EQUIPMENT

Cleans Coal Clean— and Clean Coal Cleaner!

Watch these pages for complete description of this efficient and economical coal washer.

AMERICAN RHÉOLAVEUR CORP.
The Rheo Washer
RHEOLAVEUR
120 BROADWAY, NEW YORK

Cleans Coal Clean— and Clean Coal Cleaner!

By arrangement with the Belgium patentees, we can now give American operators the inside story of the most talked of and outstanding success of European fields. Consider these facts:

In six years 150 European mines with a total production of 40,000,000 tons a year have adopted the Rheo system. Recent American installations are continued tributes to Rheo efficiency.

It will wash all coal up to 4 inches—both anthracite and bituminous—with but one screening.

It is low in first cost, operating cost, light in weight with absolutely uniform but adjustable separation.

These are proveable facts. Our data sheets will prove them to your satisfaction. **Send for them.**

American Rhéolaveur Corporation
120 Broadway-New York

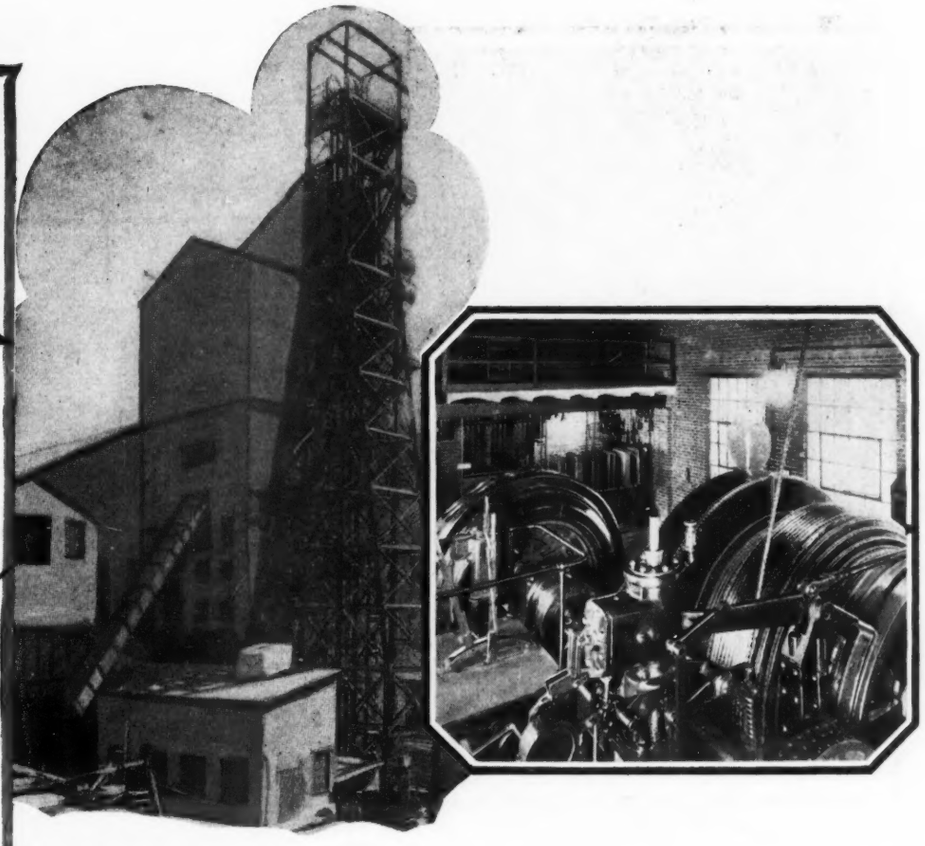
Ask any of these users—*they know!*

Bethlehem Mines Corporation

Oneida Coal Company, Huntington, West Virginia
Blue Diamond Virginia Coal Company, Middleboro, Kentucky
Carnegie Coal Company, Pittsburgh, Penna.
Mitsubishi Company, 120 Broadway, New York, N. Y.
Wheeling & Lake Erie Coal Company, Leader-News Bldg., Cleveland, Ohio
Scranton Anthracite Coal Company, Scranton, Penna.
Eugene Sullivan, Avoca, Penna.
Consolidated Fuel Company, Chamber of Commerce Bldg., Pittsburgh, Penna.
Sloss-Sheffield Steel & Iron Co., Birmingham, Alabama.
Hudson Coal Company, Scranton, Penna.
Suffolk Coal Company, Avoca, Penna.

Vulcan Products

Hoists, Electric and Steam
Locomotives, Steam, Gasoline, Electric
Rotary Kilns, Dryers, Coolers and Roasters
Fairchild Double-Discharge Ball Mill
Mine Ventilating Fans
Cages and Skips
Sheave Wheels
Corliss Engines
Coal Crushers
Gray Iron Castings
Open Hearth Steel Castings
Gears, Moulded and Cut Teeth
Special Machinery



It's hoisting 66% more coal than specified!

The original specifications at Mine No. 72 of the Bethlehem Mines Corporation at Johnstown called for equipment to handle 750 tons of coal per hour. The delay allowed for dumping and loading was 10 to 12 seconds.

This capacity has now been increased to 1250 tons per hour, an increase in tonnage of 66%.

It is a 1000 hp. VULCAN Hoist with a double cylindro-conical drum; completely equipped with safety devices. The hoisting is done in balance; total travel of rope 350 feet.

No matter what your hoist needs, you can depend upon VULCAN Engineers for that extra hoist capacity and quality which distinguishes the VULCAN. Their extensive knowledge of electric and steam hoist engineering, their obsession for thoroughness of workmanship, finish and refinement of detail has made possible the enviable performance records of VULCAN Hoists wherever installed.

Suppose you open the way for an informal discussion of your hoist problem by getting in touch with us today. VULCAN Engineers will be glad to help you.

VULCAN IRON WORKS
1730 Main Street, WILKES-BARRE, PA.
New York, 50 Church St. Chicago, McCormick Bldg.
Established 1849

VULCAN *of* WILKES-BARRE HOISTS

Efficient Coal Tipple Equipment is a foundation for continued operation

To serve most intelligently the causes of efficiency in coal tipple operation, Webster engineers have spent many years in this particular field. Their ability and counsel in furnishing complete equipment for continued uninterrupted tipple service has never left an opening for want of something better.

Thinking operators know the importance of having good reliable working units to form the inner workings of the tipple. They know, too, that in order to meet the competition which is prevalent in coal markets, coal tipples must be designed and equipped with machinery to contribute toward the greatest amount of efficiency and thereby lowering operating costs.

The knowledge that Webster Methods promote reliable operation and reduced costs is a source of satisfaction to many mine operators whose tipples are Webster equipped.

Let our engineers go over your requirements and make suggestions.

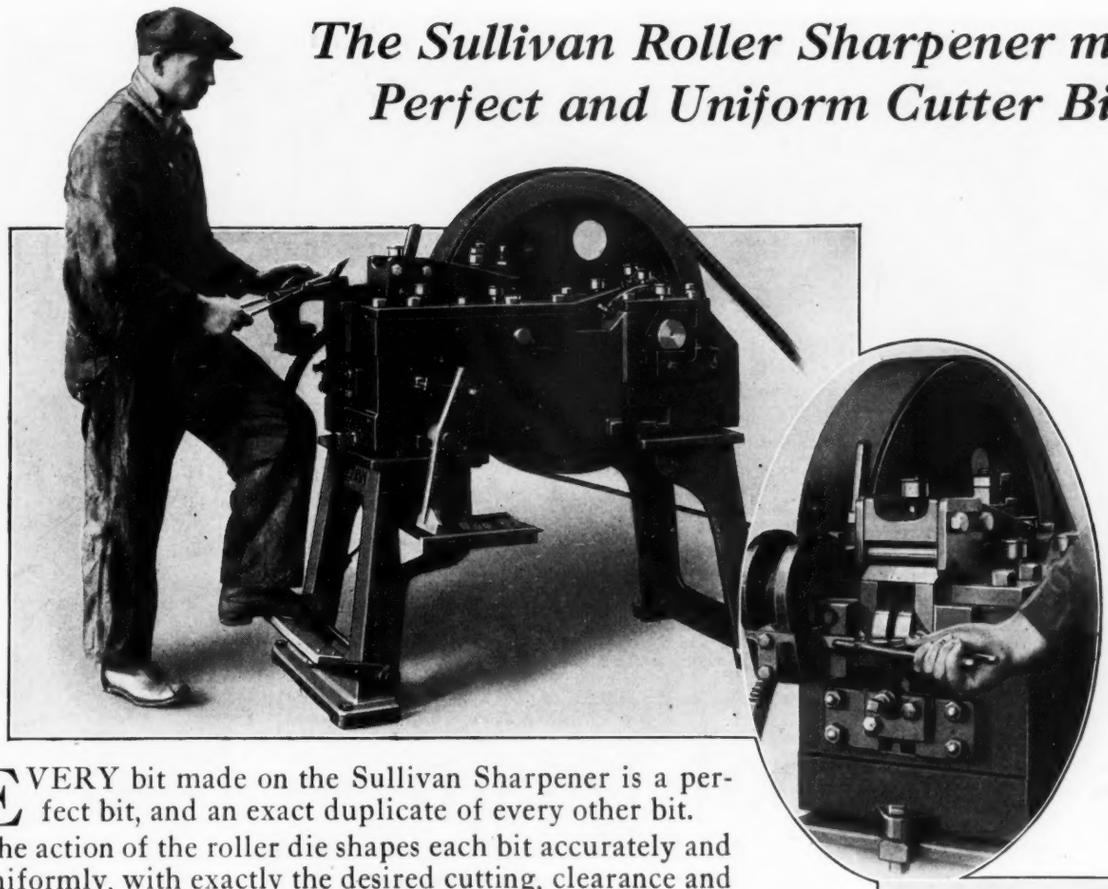
THE WEBSTER MFG. COMPANY

4500-4560 Cortland Street

CHICAGO

BOSTON BUFFALO CINCINNATI CLEVELAND NEW YORK PHILADELPHIA PITTSBURGH

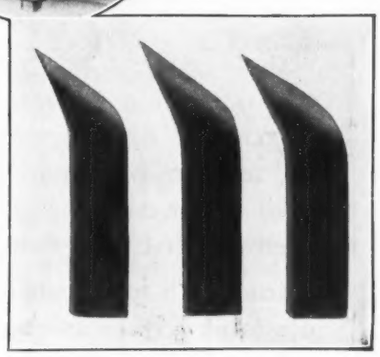
The Sullivan Roller Sharpener makes Perfect and Uniform Cutter Bits



EVERY bit made on the Sullivan Sharpener is a perfect bit, and an exact duplicate of every other bit. The action of the roller die shapes each bit accurately and uniformly, with exactly the desired cutting, clearance and side-slope angles, and the proper length of point.

Chisel-pointed Bits

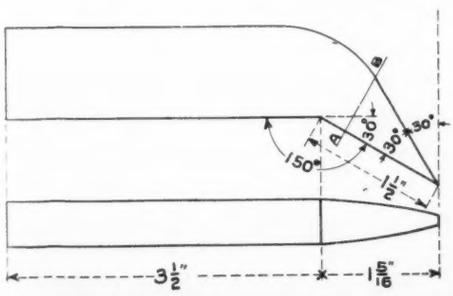
It is this uniformity that, when the bits are properly set and gauged in the cutter chain, enables the mining machine to cut more coal, with less expenditure of power, less wear and tear on the cutter chain and machine, and fewer delays for setting bits. A new feature now obtainable with Sullivan Bit Sharpeners is shown in these pictures. This is the swage, for thinning the points of bit blanks. This prevents "fins" on new bits.



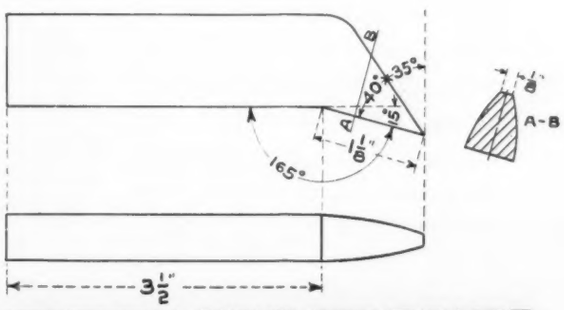
Standard Pick Pointed Bits

STANDARD CUTTER BIT DIES

These cuts show four of the seven standard forms of dies for making cutter bits on the Sullivan Cutter Bit Sharpener. These dies will be supplied with Sharpeners on order.

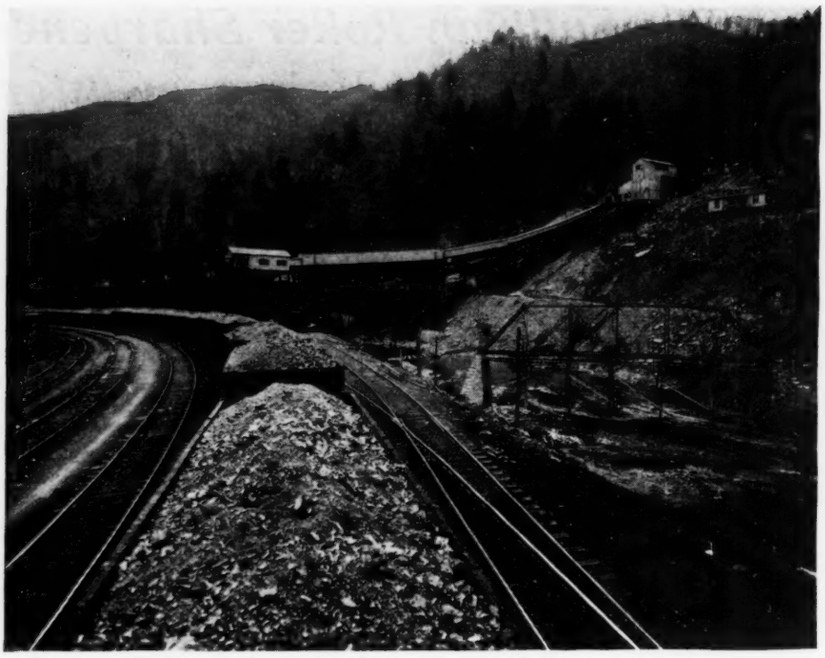


Send for New Folder No. 1723-C



SULLIVAN MACHINERY COMPANY

134 SOUTH MICHIGAN AVE. CHICAGO, ILLINOIS U.S.A.

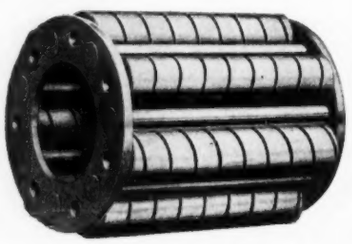


Is the coal business bad or is it normal?

YOU can find support for either contention, but good or bad, we must take business as it is and adapt our methods to meet conditions.

Mines with low costs find that they can operate profitably—some of them in spite of discriminating freight rates—but the high cost mines are riding a stormy sea.

Haulage costs are a big factor in the totals—you can't afford to spend several cents a ton to keep old plain bearing mine cars patched up when you can buy durable easy running Hyatt bearing cars at reasonable prices.



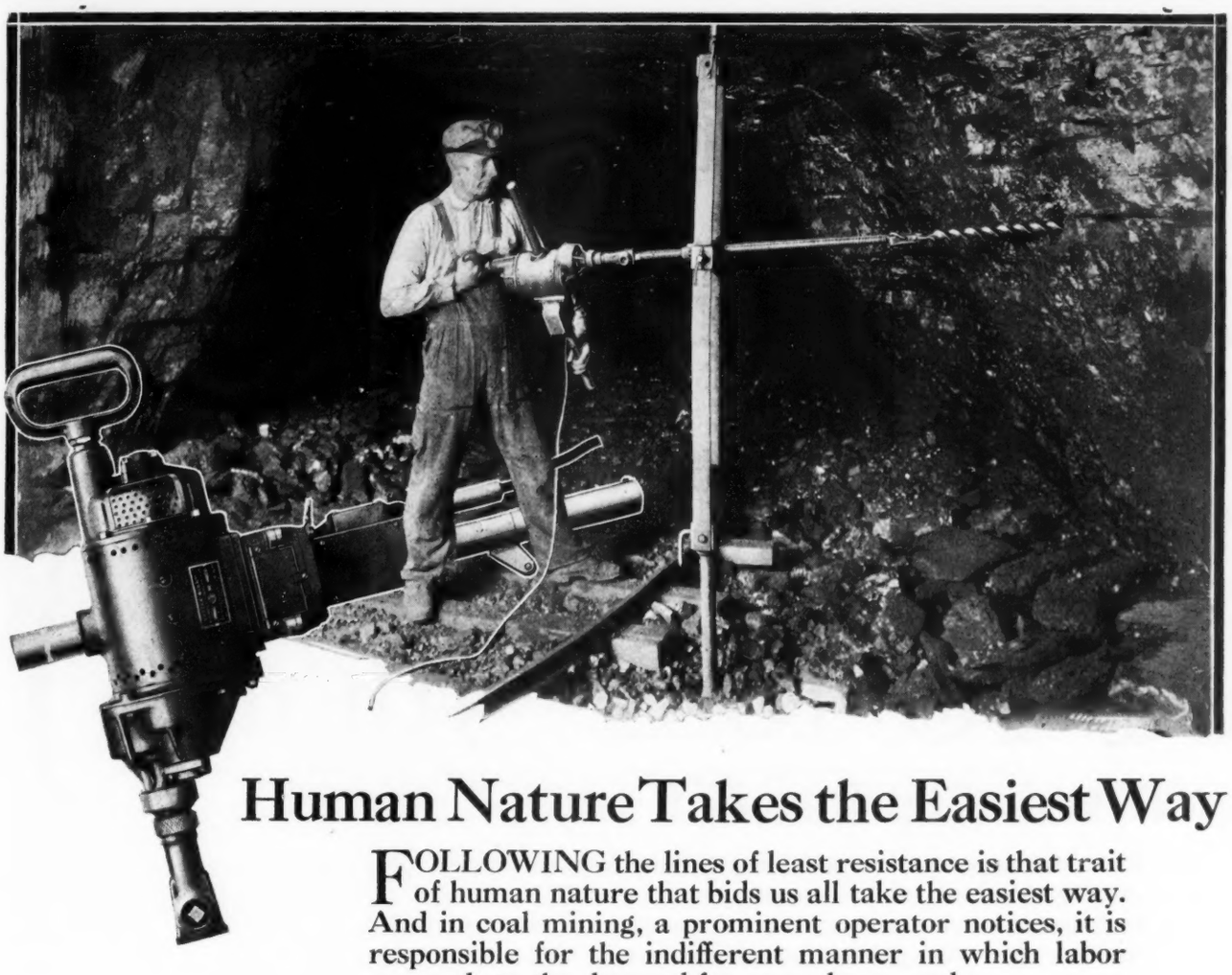
Many Hyatt equipped cars are still running in hard duty mines after 15 years of service. They have operated all of those years without adjustment, repairs or replacement of the bearings—with no attention other than an occasional application of grease. Such is the result of simple sturdy construction.

Ask any of the builders of better mine cars. They will tell you that for ability to endure under severe operating conditions—with low upkeep cost—they know of no equipment as dependable or as time-proven as their Hyatt bearing cars.

The story of Hyatt bearing mine cars is told in an interesting way in Bulletin 390. A copy will be sent on request.

HYATT ROLLER BEARING COMPANY
NEWARK HUNTINGTON PITTSBURGH CHICAGO
WORCESTER PHILADELPHIA CHARLOTTE DETROIT
CLEVELAND MILWAUKEE SAN FRANCISCO

HYATT ROLLER BEARINGS FOR MINE CARS



Human Nature Takes the Easiest Way

FOLLOWING the lines of least resistance is that trait of human nature that bids us all take the easiest way. And in coal mining, a prominent operator notices, it is responsible for the indifferent manner in which labor responds to the demand for more lump coal.

Shooting down the face scientifically, to produce the more profitable grades of coal, goes back to the proper placing of shot-holes. Herein lies the miner's aversion to hard work. The old hand-auger calls for laborious, back-breaking work.

Give them Little Giant Electric Coal Drills—drills that cut the drilling time, per hole, five to ten-fold, and drilling costs two to ten cents per ton. Little Giants offer the easiest way. Install them and let human nature produce more lump for you.

Nothing has been omitted from Bulletin 895 in order to make it a comprehensive reference and data book on drilling shot-holes with Little Giant Air and Electric Coal Drills. There is a copy for you.

Chicago Pneumatic Tool Company

6 East 44th Street, NEW YORK, N. Y.

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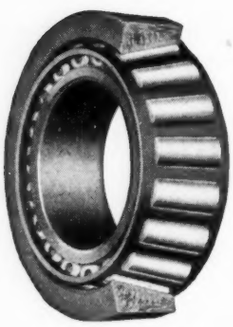
Canadian Pneumatic Tool Company, Ltd., Montreal, manufacturers of Chicago Pneumatic products in Canada
Consolidated Pneumatic Tool Company, Ltd., London, manufacturers of Chicago Pneumatic products in England

EL-97

BOYER PNEUMATIC HAMMERS··LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS··VACUUM PUMPS··PNEUMATIC HOISTS,
GIANT OIL AND GAS ENGINES ROCK DRILLS ·· COAL DRILLS

LITTLE *Coal* GIANT *Drills*

2570 tons 1st day
2573 tons 2nd day
2676 tons 3rd day
3048 tons 4th day



TIMKEN Tapered Roller

Designed for 2500 tons

But Dominion No. 1 mine, O'Neill's Point, Glace Bay District, is "expected to exceed its rated output regularly," states General Manager McCann, in charge of coal mines for the British Empire Steel Corporation. For this $3,000,000 undersea operation of the Dominion Coal Co., Ltd., is "one of the most modern efficiently-equipped mines in operation today."

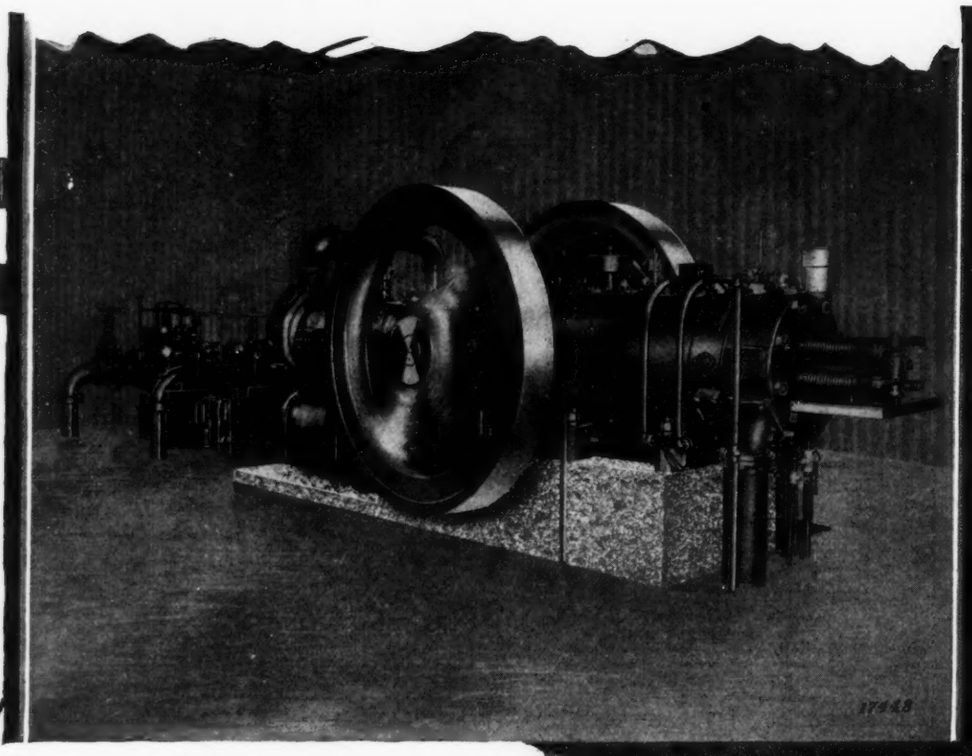
To Dominion, as to so many crack operators, modern equipment means Timken Tapered Roller Bearings in the car wheels.

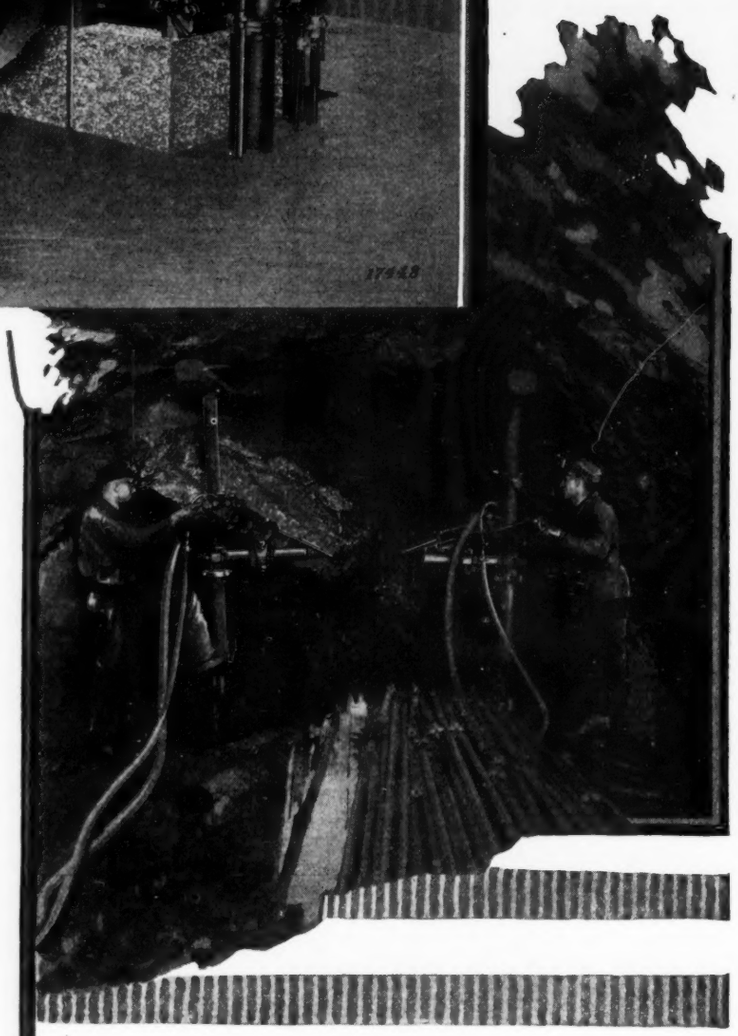
With 800 Timken-equipped cars Dominion No. 1 is another colliery where Timkens are helping to make every day a record day, by conserving labor, time and power, while requiring far less lubrication and other upkeep.

THE TIMKEN ROLLER BEARING CO., *CANTON, OHIO*

Technical information regarding bearing sizes and their mountings can be secured from the Timken Roller Bearing Service & Sales Company's Branches located in the following cities: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cleveland, Dallas, Denver, Detroit, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, Newark, New York, Omaha, Philadelphia, Pittsburgh, Portland, Richmond, St. Louis, Salt Lake City, San Francisco, Seattle, Toronto, Winnipeg

BEARINGS





Cheaper Air Power Furnished by I-R Oil Engine-Air Compressor

The Ingersoll-Rand Type "POC-2" Oil Engine-Air Compressor Unit illustrated will operate a ten-hour shift at full load on 60 gallons of fuel oil and ½ gallon of lubricating oil.

With fuel oil costing 6 cents per gallon and lubricating oil 60 cents per gallon, this unit will operate a ten-hour shift for less than $4.00.

This 100 HP. Type "POC-2" unit has a piston displacement, at sea level, of 603 cubic feet per minute. When operating at full load, this unit can furnish sufficient air for operating continuously four No. 248 "Leyner-Ingersoll" Drifters or six DCR-23 "Jackhamer" Drills.

These I-R oil engine-air compressor units are simple, rugged, efficient and reliable. Furthermore, they do not require skilled operators.

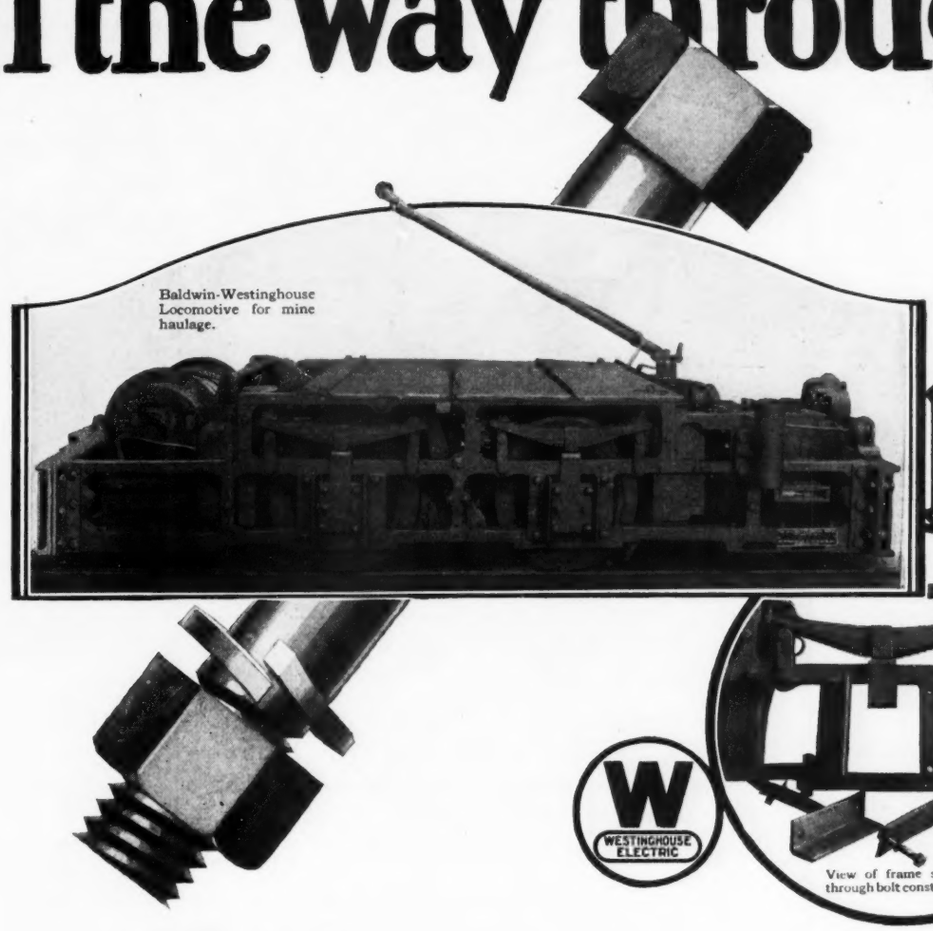
Let our engineers show you how these machines can produce cheaper air power for your drills.

Request Bulletins

INGERSOLL-RAND COMPANY-11 BROADWAY, NEW YORK CITY
Offices in principal cities the world over
FOR CANADA REFER-CANADIAN INGERSOLL RAND CO LIMITED, 260 ST JAMES STREET MONTREAL, QUEBEC.

Ingersoll-Rand

All the way through!



Through Bolt Construction

ASK the repairman, who has drilled out broken cap bolts, studs, or rivets from a locomotive, the significance of the through bolt construction of the Baldwin-Westinghouse Locomotive.

He will tell you:

The strength and rigidity of the frame is improved.

The locomotive need not be raised nor go to the pit to replace bolts.

Drilling is unnecessary.

Replacement of bolts is a matter of minutes instead of hours.

Time and labor is saved, and production delays greatly shortened.

Through bolts are used exclusively by Baldwin-Westinghouse throughout the entire mechanical construction of the locomotive.

Let our sales engineers explain in detail the many other desirable features of the Baldwin-Westinghouse Locomotive.

The Barsteel frame used in the Baldwin-Westinghouse Locomotive is many times stronger than the ordinary frame. This permits an open construction with maximum accessibility so that repairs can be made easily and quickly.

The Baldwin Locomotive Works
Philadelphia Pennsylvania

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania

Baldwin-Westinghouse

X 81793

Two Years
—and still going strong!

Super Service Mining Cable in the Peerless Quarries

Supplying power to the "big drill," this length of Super Service Cable has been dragged about for two years. Through mud and over rocks. Exposed to all kinds of weather. Yet, if you wipe off the mud and dirt today, you will find it as good as when it was sold.

Every foot of Super Service is vulcanized, in steel molds, under tons of pressure. The result is a tough, durable, non-kinking cable that will outlast any other. Waterproof, of course, it is oil and acid resistant as well.

If you can use such a cable, write today for complete information and prices, or a sample to test.

ROME WIRE COMPANY

Mills and Executive Offices: Rome, N. Y.

Diamond Branch: Buffalo, N. Y.

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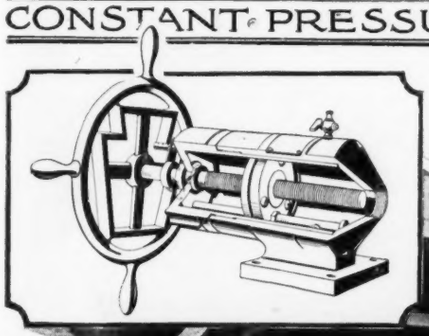
Detroit, 25 Parsons Street
Cleveland, 1200 W. 9th Street
Los Angeles, J. G. Pomeroy, Inc., 336 Azusa Street
San Francisco, J. G. Pomeroy, Inc., 51 Federal Street

ROME WIRE

SUPER SERVICE MINING CABLE

CONSTANT-PRESSURE KEYSTONE AUTOMATIC LUBRICATION SYSTEMS

GREASE
The Master Lubricant



A suggested method for attaching the Keystone Constant-Pressure Automatic Lubricating System to your present equipment.

You can lubricate all of these idlers from one point!

With the Keystone Constant-Pressure Automatic Lubricating System you can lubricate every one of these idlers on your conveyor belt from a central point.

Consider this saving in labor cost. Instead of shuttling a man along the line of grease cups, the entire job is done by an occasional twist of a wheel at *one central point.* The system is automatic and insures constant pressure at all points.

Eighty percent saved in labor cost, cost of delays, cost of depreciation on poorly lubricated machinery, and the cost of the lubricant itself, is the experience of some users.

May Keystone Engineers investigate the opportunity to save *you* large sums annually with the Keystone System? A trial installation can be put in without obligation if you desire. Write for "Installation Suggestions."

Lubricate Automatically —it pays

THE KEYSTONE LUBRICATING COMPANY

Executive Office and Works, PHILADELPHIA, PA.

Established 1884

New York	Chicago	Denver	Montgomery, W. Va.	Omaha
Boston	Detroit	San Francisco	Kansas City	Tulsa, Okla.
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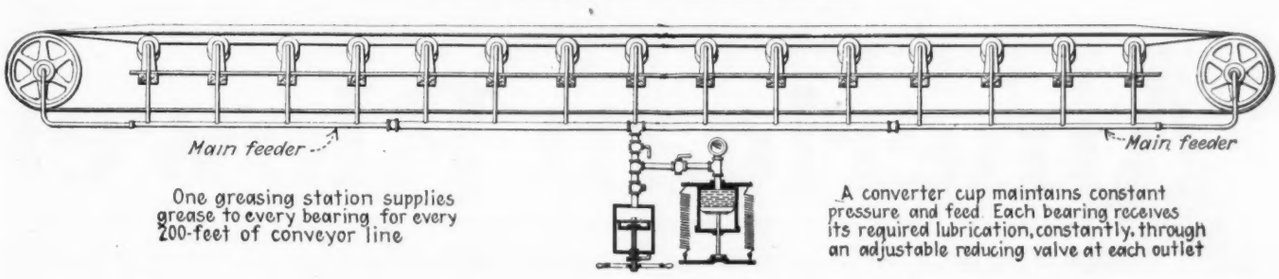
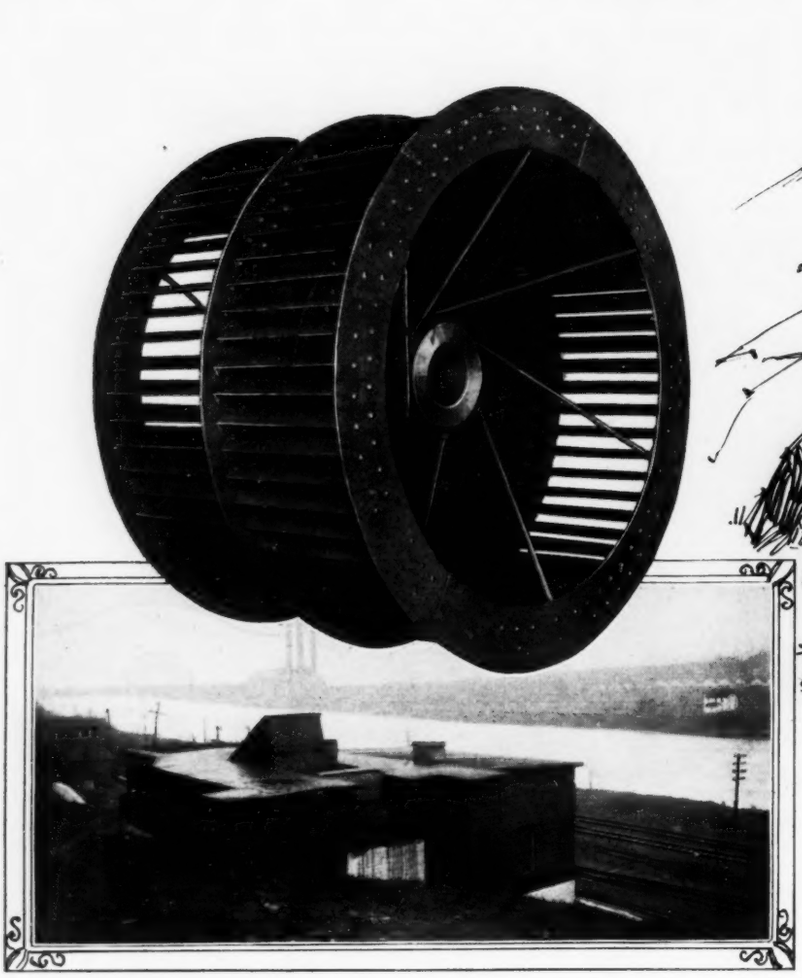
Agencies in Principal Countries Throughout the World



One greasing station supplies grease to every bearing for every 200-feet of conveyor line

A converter cup maintains constant pressure and feed. Each bearing receives its required lubrication, constantly, through an adjustable reducing valve at each outlet



Sirocco Mine Fan Installation
Diamond Coal & Coke Co.—
Barking Station, Pa.

Are You Throwing Your Money Away With an Inefficient Ventilating System?

If your present ventilating fans are obsolete or if they are not suited for your particular mine, you are spending more money in power than is necessary. And your excessive power costs will eventually amount to many times the cost of new units.

American Blower Sirocco Fans are made to economically solve each individual ventilating problem. And American Blower Engineers will give you detailed facts and figures regarding what can be accomplished by their use. They will give you invaluable information based on over 40 successful years' experience in the manufacture of air handling equipment.

If your fans are running your power costs up — it will pay you to consult our engineers.

AMERICAN BLOWER COMPANY, DETROIT
BRANCH OFFICES IN ALL PRINCIPAL CITIES
CANADIAN SIROCCO COMPANY, LIMITED, WINDSOR, ONTARIO

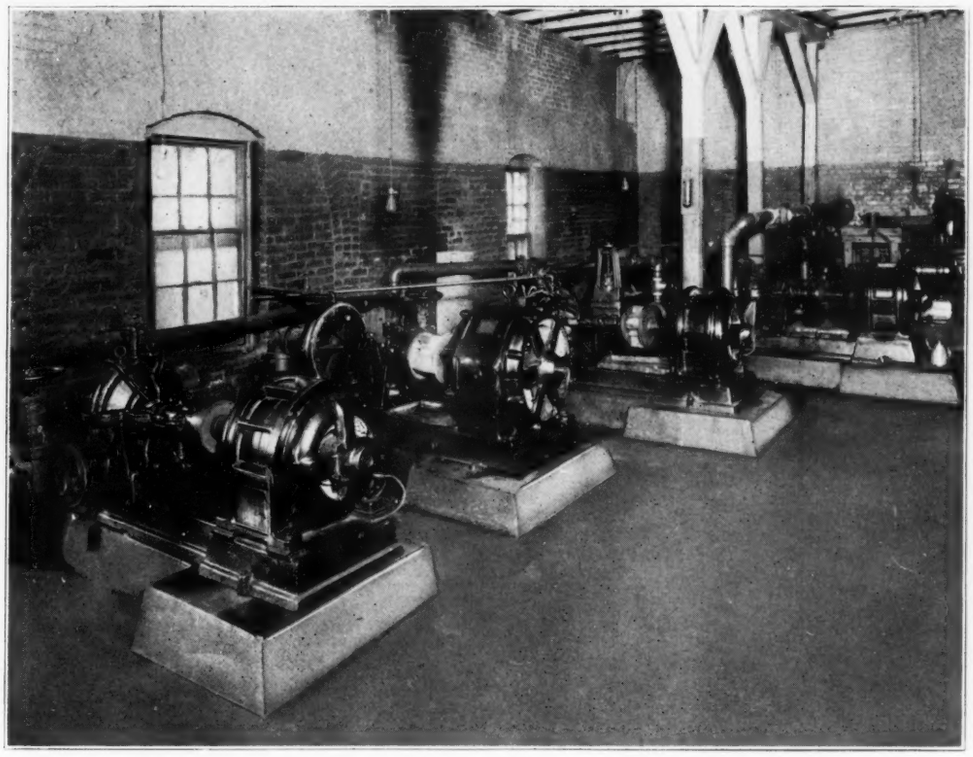
447

American Blower

"Sirocco" TRADE MARK VENTILATING, HEATING, AIR CONDITIONING, DRYING, MECHANICAL DRAFT

Manufacturers of all Types of Air-Handling Equipment ——— Since 1881

AMERICAN
AURORA, ILL.



"American" Pumps at Eagle Picher Lead Plant!

SOME of these "American" pumps have been on the job for the Eagle Picher Lead Company since 1916. Only last year the latest "American" was added to the group.

Five centrifugals, three of which are multi-stage, and two double suction pumps, are on the job. They have a capacity of from 250 to 750 G. P. M. and operate against heads up to 280 feet.

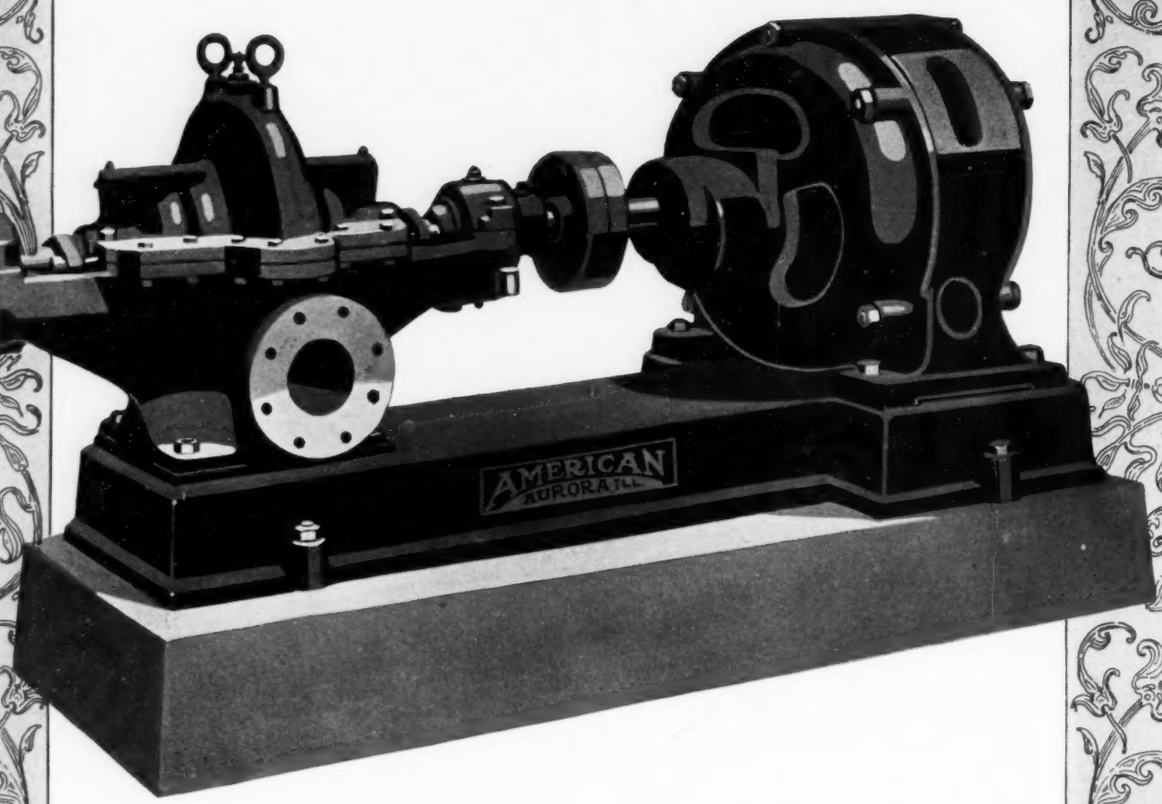
GENERAL OFFICES AND WORKS - AURORA, ILL.

THE AMERICAN WELL WORKS

NEW YORK, N. Y. . . . . 165 BROADWAY
MILWAUKEE, WISC. . . . . WISC. NAT. BANK BLDG.

BRANCH OFFICES
CHICAGO, ILL. . . . . FIRST NATIONAL BANK BUILDING

DALLAS, TEXAS . . . . WESTERN INDEMNITY BLDG.
SAN FRANCISCO, CALIF. . . . . 635 MISSION STREET



THE "American" type DSMD centrifugal pump is a horizontal split shell, single stage, double suction, centrifugal pump furnished with bronze enclosed impeller, bronze labyrinth wearing rings, bronze shaft sleeves and bronze split glands.

Pump is mounted on extended cast iron base to receive motor and is provided with flexible coupling of the pin and bushing type for direct connection to motor.

Pump is of the double suction type and is built in sizes from 2" to 42" and for designed heads up to 250' depending upon size and capacity.

The bearings of the pump are entirely separate from the stuffing boxes which eliminates the possibility of any grit or water in the bearing. The oil reservoirs in the bearing are large, furnishing an ample supply of oil. The stuffing boxes are water sealed so as to insure tight packing without excessive pressure for friction on the revolving shaft.

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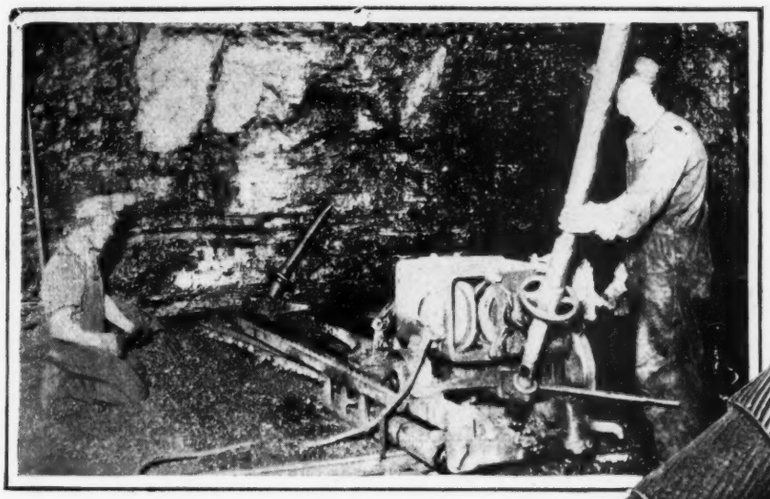

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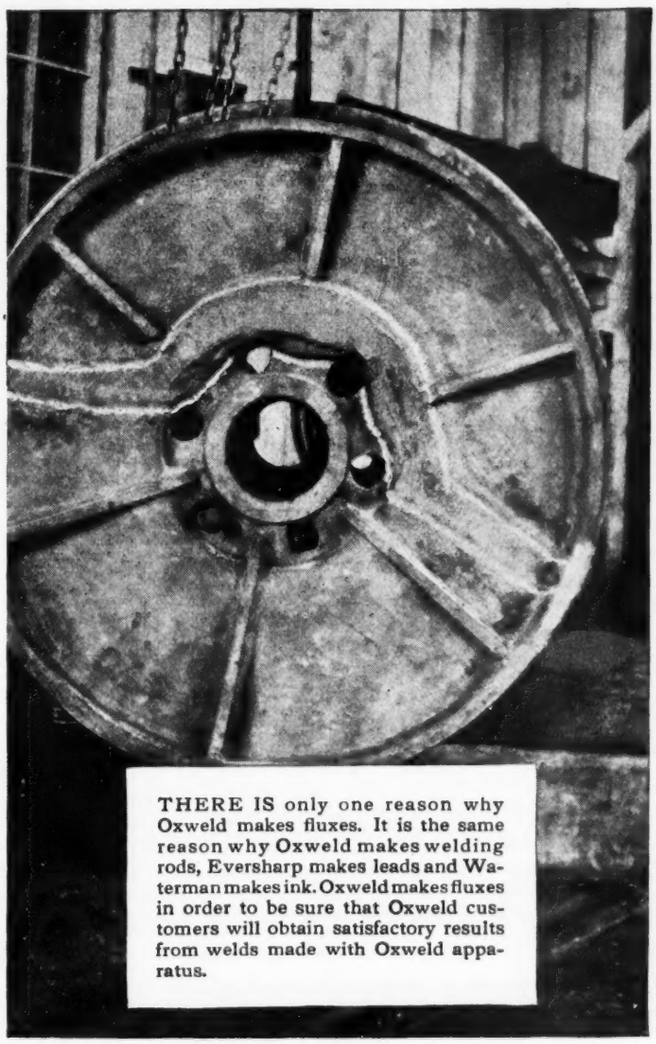
Why should you use Oxweld fluxes?



THERE IS only one reason why Oxweld makes fluxes. It is the same reason why Oxweld makes welding rods, Eversharp makes leads and Waterman makes ink. Oxweld makes fluxes in order to be sure that Oxweld customers will obtain satisfactory results from welds made with Oxweld apparatus.

FLUXES are used in welding to remove oxides. There are other primary reasons for their use, but this is the most important.

The particles of oxide formed in welding are so small and so distributed through the metal that their presence is not always discernible. Tensile strength tests of such welds, however, quickly show how the oxides have reduced the strength of the weld. The oxides must be removed by suitable fluxes.

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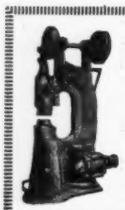

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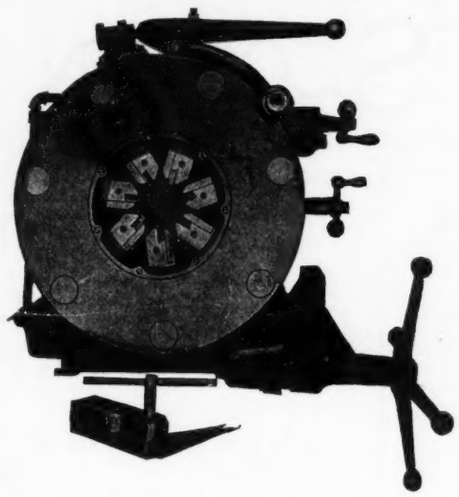

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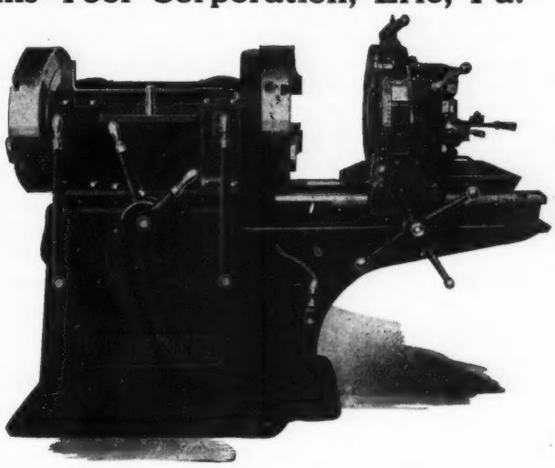

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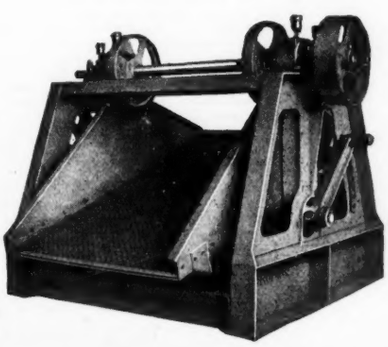

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1—42-in. gauge, 6-ton 250 v. D.C. with cable reel
6—36-in. gauge, 5-ton Goodman.
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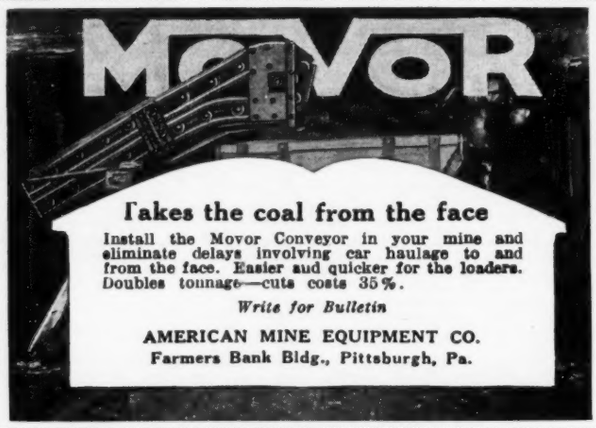

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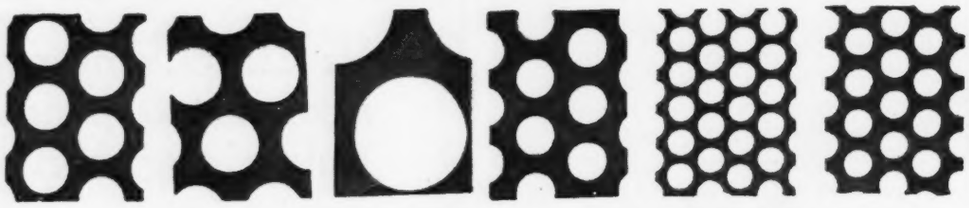

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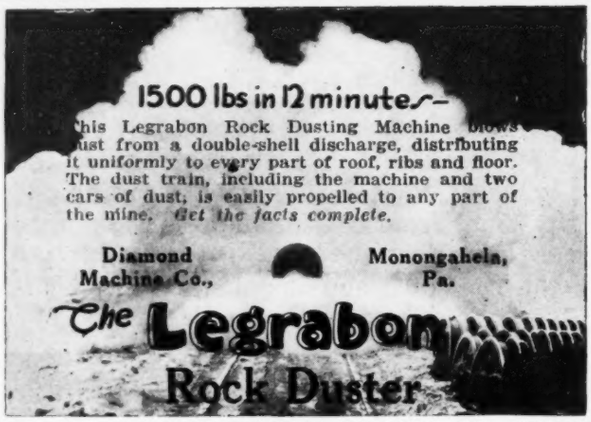
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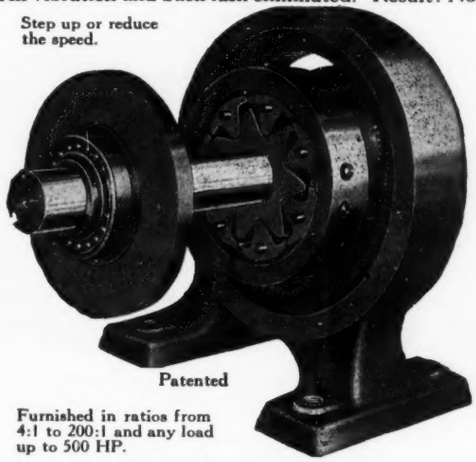

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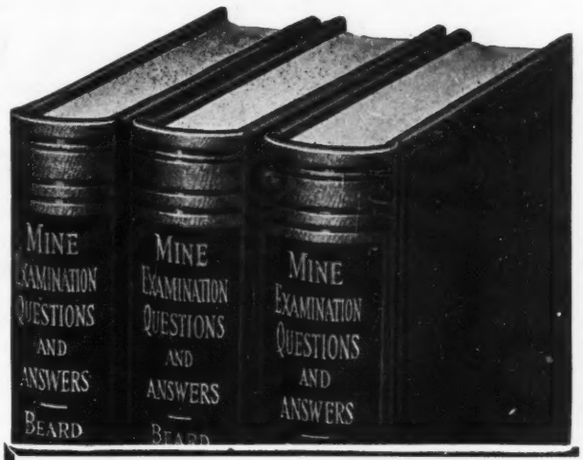

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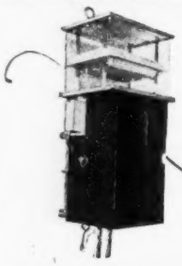

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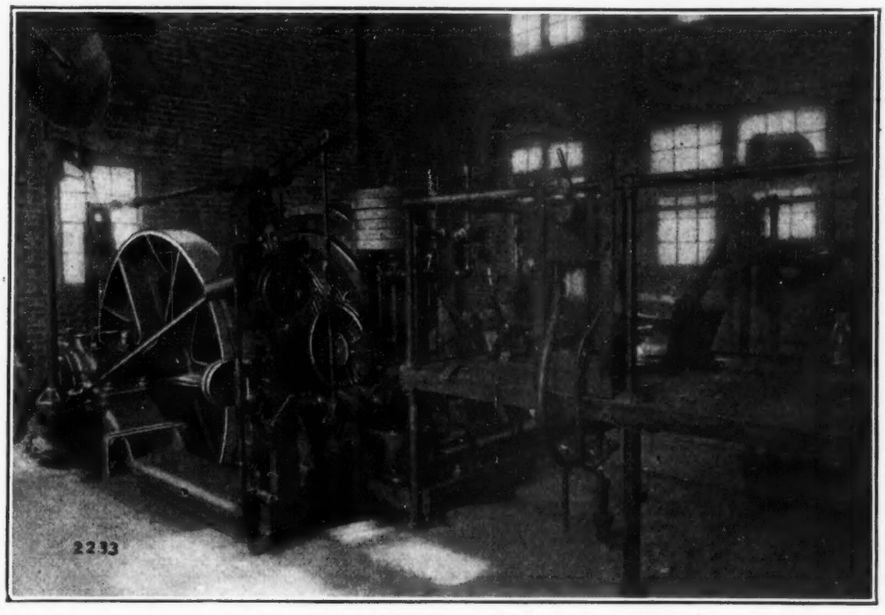

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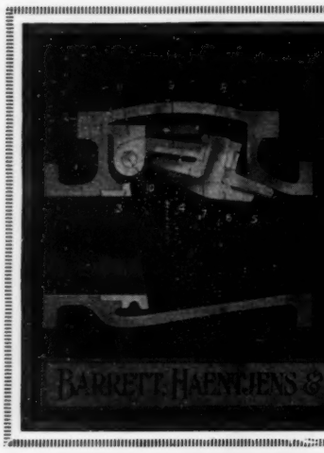

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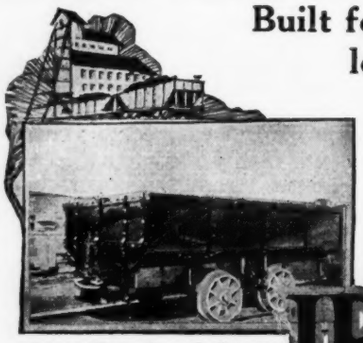

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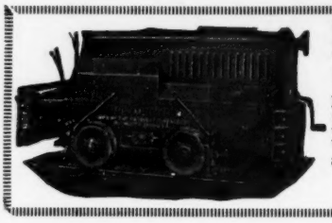

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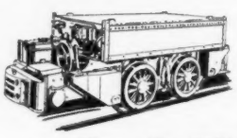

WHITCOMB LOCOMOTIVES
Decrease Haulage Costs
Geo. D. Whitcomb Co. Rochelle, Illinois.

DE LAVAL STEAM TURBINE CO. TRENTON, N.J.
De Laval Steam Turbine Co.
Trenton, N.J.
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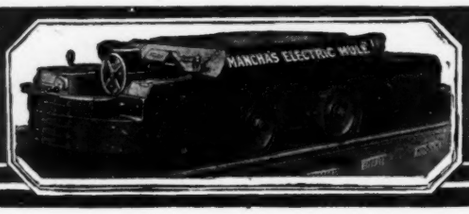
Flexible Couplings. Catalog K71.
Water Wheels. Catalog T71.

ATLAS
Mine Locomotives
THE ATLAS CAR & MFG. COMPANY
Engineers CLEVELAND, O. *Manufacturers*



Mancha's Electric Mule
Mancha Storage Battery Locomotive Co.
St. Louis, Mo.
Representatives In All Principal Cities

How Shays Save Money In Strip Mine Hauling

May we send you a copy of our catalog?

SHAYS are saving their cost over and over again in many strip mines, by serving continuously and dependably over long periods of years, operating on inexpensive track. over steep grades and sharp curves.

"We are using six Shays," writes the Superintendent of one company. "They have been in service since 1908 and 1911 and are doing their work as well as new machines.

"They will operate on track that a rod engine could not move on."

This company is using various types of locomotives at their operations, but they say, "for traction and power, the Shay leads them all."

May we explain how powerful and dependable Shays can reduce your hauling expense?

LIMA LOCOMOTIVE WORKS
Incorporated
17 East 42nd Street, New York
Lima, Ohio

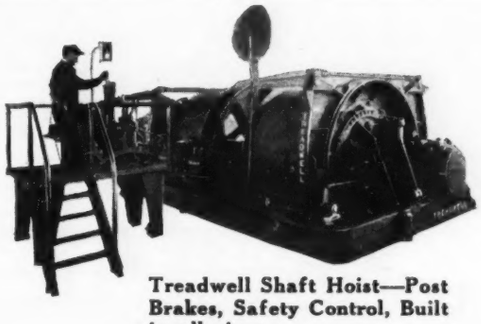
Built for Tight Places!

FIG. 71
For General Mine Service

This Horizontal Triplex Pump is built in 10 sizes. The largest size, capacity 324 gallons per minute stands only 46 inches high. That's space saving design for you!

Complete Mine Pump Bulletin on Request
THE DEMING CO. Est. 1880 Salem, Ohio
"Distributors in All Principal Cities"

Deming
HAND AND POWER PUMPS FOR ALL USES



Treadwell Shaft Hoist—Post Brakes, Safety Control, Built in all sizes.

TREADWELL ENGINEERING CO.
EASTON, PA.

2 moving parts —that's all!

A large angular gear and a small internal idler gear—these are the only two moving parts of the Viking Coal Mine Gathering Pump. A forced-feed lubricator is used. The Viking Pump operates at higher average efficiency against varying loads than any other pump on this type of work.

Get the complete particulars.

POWER EQUIPMENT COMPANY
(Chas. A. Saints)
Oliver Building, Pittsburgh, Pa.

Coal Mine Equipment Co., Pittsburgh, Pa. Coffin & Smith, Scranton, Pa. LaLance Equipment Company, Huntington, West Va. The Cameron Equipment Co., Cleveland, Ohio, General Machinery Co., Birmingham, Alabama.

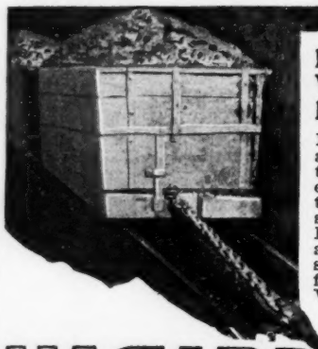
VIKING GATHERING PUMP

"U.S." 48-10 AIR HOSE stands the gaff of coal mine service

Write for catalog C-24
United States Rubber Company
1790 Broadway New York City

Branches in Every Industrial Center

US
UNITED STATES RUBBER COMPANY AND ASSOCIATED COMPANIES
Trade Mark



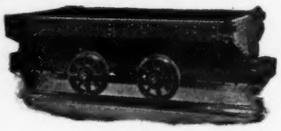
Hazard Wire Rope Withstands Every Wear-test.

Increasingly heavy loads and rapid acceleration; the grinding and tearing effect of hard slope conditions; the severe bending stresses set up as the Ropes run over the drums and sheaves; problems such as these are successfully solved by Hazard Wire Rope.

HAZARD MFG. CO.
Wilkes-Barre, Pa.

HAZARD

THE LORAIN STEEL COMPANY
Johnstown, Pa.

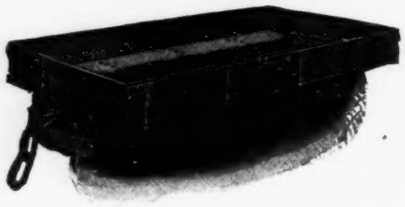


Manufacturers of steel and Composite mine cars, and all kinds of mine track work.

Sales Offices:
Atlanta Chicago Philadelphia Cleveland Pittsburgh New York

Pacific Coast Representative:
United States Steel Products Company
Los Angeles Portland San Francisco Seattle

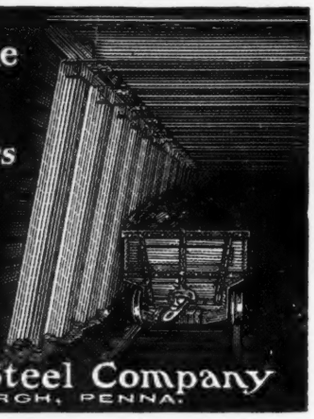
Export Representative:
United States Steel Products Company, New York, N. Y.



Complete Cars
Trucks of all Types
Builders of the Hollow Axle Truck
SOUTHERN WHEEL COMPANY
ST. LOUIS, MO. BIRMINGHAM, ALA.

Equip Your Mine With Steel

Steel Mine Timbers
Steel Cross Ties
Wheels-Axles
Rails-and
Accessories



Carnegie Steel Company
PITTSBURGH, PENNA.

ROTARY CAR-DUMPERS FOR MINE CARS (GRAVITY, ELECTRICAL OR PNEUMATIC DRIVE)
"SOLIDCAR" SELF-DUMPING CAGES CAR CONTROL AND CAGING EQUIPMENT
CHICAGO ILL.
CAR-DUMPER & EQUIPMENT CO.
PITTSBURGH PA.
THE MECHANICAL SPRAGGER AUTOMATIC TRIP CONTROL EQUIPMENT
ROTARY CAR-DUMPERS FOR STANDARD GAUGE RAILROAD CARS

Automatic
Aerial Tramway
Lowers Production Costs
Let Us Demonstrate
Interstate Equipment Corp.
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Waverly ALL PENNSYLVANIA
OILS and GREASES for MINE CARS and MACHINERY
Refined from All Pennsylvania Paraffin Base Crude Petroleum
SEND FOR OIL AND GREASE CHARTS
Waverly Oil Works Company
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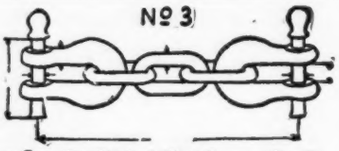
GO TO YOUR LOCAL MINE SUPPLY DEALER

8, 12, 16, 20, 25, 30, 35, 40 lb. per yard
Splices, Spikes, Frogs and Switches
UNITED STATES RAIL CO.
CUMBERLAND, MARYLAND

PROMPT SHIPMENTS

We are prepared to furnish Hitchings, any size, style or quantity. Puncher Picks, Machine Bits and Bit Steel.

Let us quote you.



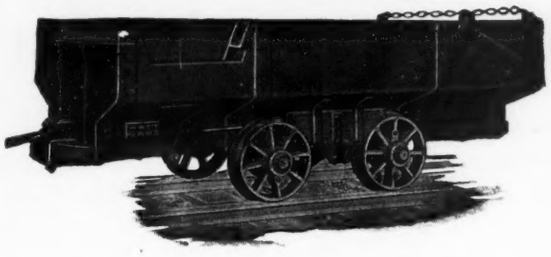
Pittsburgh Knife and Forge Co. *Established 1876* Coraopolis, Pa.
Successors Pittsburgh Steel Mfg. Co. and Wm. Harris & Son Co.

NEW and RELAYING RAILS
1 TON OR 1000
TRACK EQUIPMENT
L.B. FOSTER CO.
RAIL ACCESSORIES
PITTSBURGH-PENNSYLVANIA
NEW YORK · JERSEY CITY · PHILADELPHIA · HAMILTON, O.

SPECIFY THE BEST FOR YOUR MINES
A Complete Line of the Highest Grade Track Materials
Write for Descriptive Catalog.

SWEETS STEEL CO WILLIAMSPORT, PA.

Only reliable products can be continuously advertised



Builders of good
MINE CARS
SINCE 1863

Ask for particulars on
The Watt-Hyatt Roller Bearing Wheel

The
WATT MINING CAR WHEEL CO.
Barnesville, Ohio

SELLING "WATT QUALITY PRODUCTS"
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REG. U.S. PAT. OFF.

Regardless of Weather

Ohio Mine Car Grease is not affected by weather conditions and has a lower cold test than any other lubricant.

Made in three consistencies for all reservoir or cavity type wheels and resists the action of mineralized mine waters.

Send for liberal testing samples and judge for yourself.

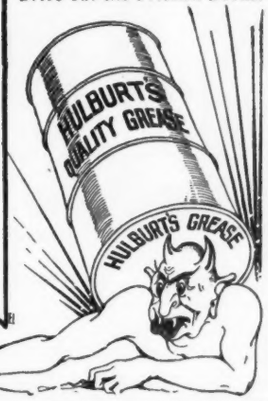
***The* OHIO GREASE CO.**
Loudonville, Ohio.
Stock Carried in All Principal Cities

OHIO *Grease*

HULBURT'S

Mine Car Grease
Mining Machine Lubricant
Locomotive Lubricant
Wool Yarn Elastic Grease
Cup Greases
Cable Grease
Mechanical Loader Grease
HULBURT OIL & GREASE CO.
Specialists in Coal Mine Lubrication
Gen'l Offices & Works: Phila., Pa.
Distributing Points Throughout Coal Mining Fields.

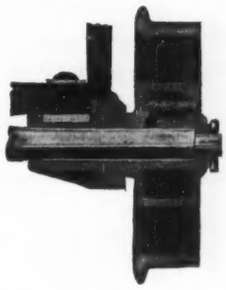
Drive out the Friction Devils.



Is guaranteed for a year against hub wear—

PHILLIPS

Patent Open Cap Wheel Truck



Is seldom shopped on account of truck trouble.

Holds lubricant for long periods.

Is easily applied with a few large bolts.

Has full-floating axles with visible linch pins.

THIS Truck is the ideal running-gear for large or small mines, light or heavy cars, animal or mechanical haulage. It will solve that problem of hard-running cars—on level track it runs 25 per cent easier than other improved trucks selling at the same price.

Write us today!

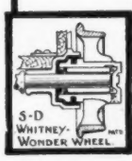
Phillips Mine and Mill Supply Co.
So. 23rd and Jane Sts., Pittsburgh, Pa.

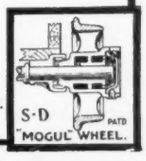
I Make

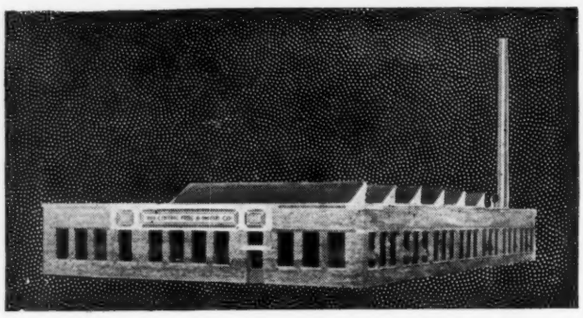
THE WONDERFUL AUTOMATIC DROP BOTTOM MINE CAR

ALSO OTHER MINE CARS AND THE "WHITNEY WONDER" ROLLER BEARING TRUCKS

TRY Mr. Sanford-Day.
KNOXVILLE. TENN.







"Track equipment headquarters"

Central track equipment is designed and built by men who know the mining business from having grown up with it.

They know what track equipment is called upon to stand up under and Central engineers have built Central Frogs, Switches, Switch Stands, Crossings, etc. to "stand the gaff."

The Central line is complete. Whatever your track need, let CENTRAL quote you on your requirements.

The Central Frog & Switch Co.
Cincinnati, Ohio

CENTRAL
MINE TRACK EQUIPMENT

Look over this list and ask us to quote you

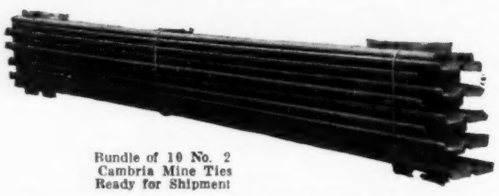
With the facilities of our greatly enlarged Huntington Plant, we are now supplying the industry with a complete line of up-to-date Track Work:

Rails
Steel Mine Ties
Solid Steel Frogs
Riveted Steel Frogs
Crossings and Track Layouts
Rail Braces
Turnouts
Portable Track Sections
Split Switch
Switch Stands, etc.
Splices, Angles and Spikes

The West Virginia Rail Co.
Huntington, W. Va.

W.VA.RAIL

Bethlehem Products for Mines



Bundle of 10 No. 2 Cambria Mine Ties Ready for Shipment

Frogs, Switches, Switch Stands, Rails, Splice Bars, Bolts, Spikes, and Cambria Mine Ties

Bethlehem Steel Company, Bethlehem, Pa.

BETHLEHEM

UNA
RAIL BONDS

A Continuous Path of Copper from Rail to Rail.

Send for Bulletin 105.

UNA WELDING AND BONDING CO.
Cleveland, Ohio

The Trojan one-piece Frog "has made good"

The "Cincinnati" Frog & Switch Co., Cincinnati, Ohio

"CINCINNATI"

WHAT AND WHERE TO BUY

A Classified Index of Advertisers in this Issue

For Alphabetical Index See Last Page

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Oxweld Acetylene Co.

Aerial Tramways
American Steel & Wire Co.
Interstate Equipment Corp.
Leschen & Sons Rope Co., A.

Air Aftercoolers
Chicago Pneumatic Tool Co.
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Timken Roller Bearing Co.

Bearings, Thrust
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Morse Chain Co.

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Link-Belt Co.
U. S. Rubber Co.
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Bit Steel & Mining Mch. Bits
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Buckets, Coal Handling
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(See Explosives)

Dynamos (See Generators)

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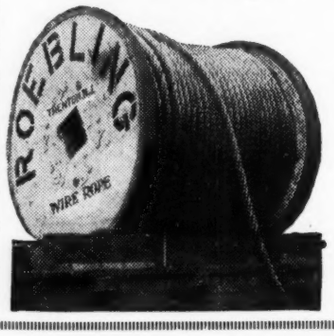

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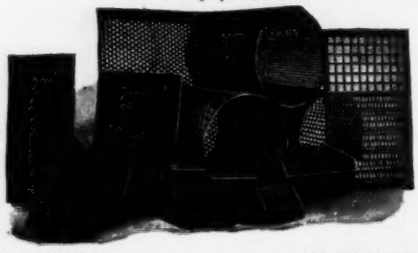

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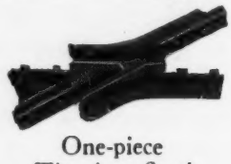

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